ADVENTURES OF FUTURE SCIENCE

June

WONDER Stories

HUGO GERNSBACK
Editor

A GERNSBACK PUBLICATION

"THE INVISIBLE CITY"
by Clark Ashton Smith

Other Science Stories
In This Issue

"THE HELL PLANET"
by Leslie F. Stone

"BROOD OF HELIOS"
by John Bertin

"THE MESSAGE FROM MARS"
by Ralph Stranger

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Vol. 4, No. 1 JUNE, 1932

Published by
STELLAR PUBLISHING CORPORATION
H. GERNSBACK, Pres. S. GERNSBACK, Treas. I. S. MANHEIMER, Sec'y.

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this month, taken from Clark Ashton Smith's "The Invisible City" we see the city being destroyed by the plane of pure light. The avengers of the city are trying to trap the two explorers by the pursuing green coils.

NEXT MONTH

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by L. A. Eshbach

In this novelette the idea of time as a closed circle of events, is most dramatically portrayed. We are projected ten, twenty thousand years into the future, and we see the working out of human destinies, set in motion in our own day. Mr. Eshbach has really done a marvelous job, for his story moves swiftly and fiercely on its terrible but inevitable end. Under the all-powerful domination of the brain . . . but you must read it to see what we mean.

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Address all contributions for publication to Editor, WONDER STORIES, 96-98 Park Place, New York. Publishers are not responsible for lost MSS. Contributions cannot be returned unless authors remit full postage.

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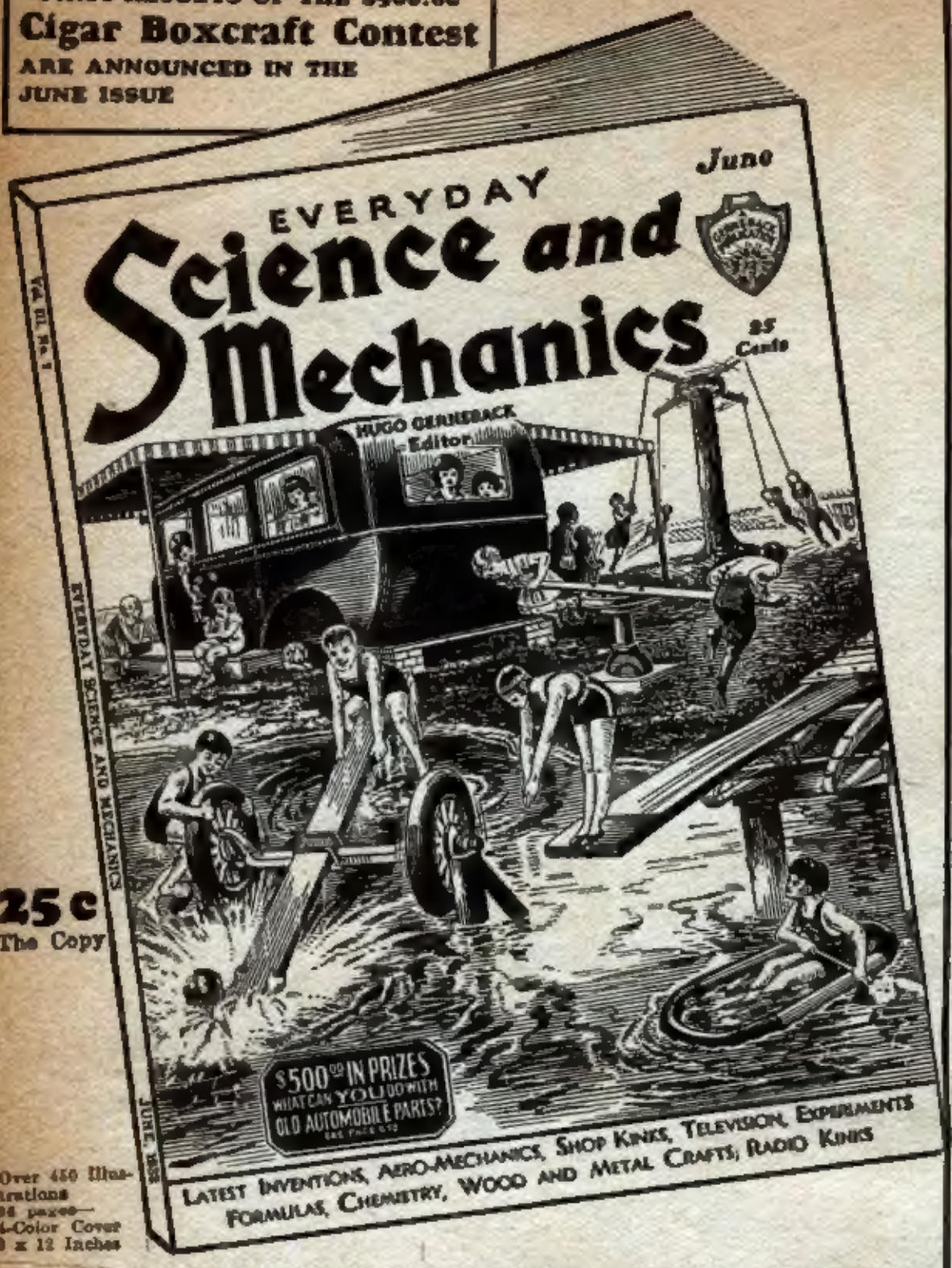

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No. 1

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1932

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ZOOLOGY
Dr. Joseph G. Yoshioka.
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These nationally-known educators pass upon the scientific principles of all stories.

WONDERS OF THE COMMONPLACE

By HUGO GERNSBACK

WHEN we see and hear certain things day in and day out, all our lives, we become so accustomed to them that they no longer arouse any attention.

And it is one of the greatest failings of the human race that we pay no attention to the commonplace; although it is there that most of the secrets of nature are hidden. It took such a deep thinker as Newton to observe an utterly commonplace occurrence such as a falling apple; and his studies of gravitation that followed gave us more insight into the celestial mechanics than any man has contributed before or after. Rather than go far afield, it might behoove us to look at the commonplace things which surround us on every hand, and here make discoveries which may, in time, prove revolutionary. A few examples will make my point clear:

We say the sun shines, yet, as a matter of fact, all sunlight is invisible and it cannot be seen at all. If you doubt this statement, on the next clear starlit night look skywards and see if you can see any sunlight. When it is night you are naturally in the earth's shadow. Yet, *beyond* the earth's shadow, *with the full force of the sunlight streaming over it*, no light can be seen. The small space occupied by the earth's shadow is really insignificant, and at its furthest limit it extends only some 900,000 miles, therefore all around us sunlight exists but it cannot be seen.

If all space were filled with atmosphere, the situation would of course be different. You would then see the sunlight exactly as you see the rays of a searchlight passing overhead, although you need not see the searchlight itself. But transport the same searchlight out into the vacuum of open space, as for instance to the moon, and you could not see the light unless you saw the source itself. Cut off the view of the searchlight and you no longer see the rays.

Did it ever occur to you that extremely little heat from the sun is used for useful purposes? If you take all of the planets together, their surface upon which the rays of the sun fall, as compared with the sun's surface is so insignificant, that it cannot even be considered for practical purposes. Yet, the sun loses a tremendous amount of energy every second by radiation into space. Now consider that only a very small fraction of this radiant heat falls on the surface of a planet like the earth, for instance, and here it is used for heating purposes. It is like having all of the powerhouses of the entire world run day and night and using a 2-candlepower incandescent lamp as the total amount of the energy consumed. The rest is waste. Waste, from our viewpoint, of course, may not be "waste" from another viewpoint which we do not know.

The earth, as well as the rest of the planets in their almost circular paths around the sun travel at high speed. It is as if you had someone on the sun whirling a huge string with a stone attached at the other end. The stone, —in this instance the earth,—flies at the rate of some 65,000 miles an hour—a tremendous speed. Naturally, the supporting "string" has to be quite solid to keep the "stone" from flying out into space, and how thick would you expect—in the case of the earth—the "string" would have to be? The calculation comes out in this case, to about 185 miles thick (diameter). You can therefore imagine a wire made of the best tempered steel 185 miles in diameter to hold the earth from flying off into space due to its centrifugal force. Yet, of course, we know that there is no such wire or support, but that the earth swings entirely free; a very puzzling phenomenon when you come to think of it.

It should be simple to build a huge searchlight whereby it would be possible to send flashes to the unilluminated portion of the moon so that observers in some other part of our earth could see the flashes. In other words, a sort of telegraphy, using the moon as a screen. A German professor who gave the matter some attention figured out that it would be impossible to build a large enough searchlight to do the trick; in other words, that no human-made source of light could be strong enough to accomplish the result. The worthy professor calculated that it would certainly be impossible for human beings to provide as much illumination as is now provided by the stars, which also illuminate the dark portions of the moon. In other words, to see the flashes you would have to provide more illumination than the light of all the stars combined, which at this stage of our civilization seems hopeless.

THE INVISIBLE CITY

By **Clark Ashton Smith**

(Illustration by Paul)

The thing was phenomonally light; and it seemed to burn and freeze his fingers. The ring of ultra-violet beings stood stupefied by his audacity.

THE INVISIBLE CITY

by the author of "The Eternal World," "Beyond the Singing Flame," etc.

"CONFOUND you," said Langley in a hoarse whisper that came with effort through swollen lips, blue-black with thirst. "You've gulped about twice your share of the last water in the Lob-nor Desert." He shook the canteen which Furnham had just returned to him, and listened with a savage frown to the ominously light gurgling of its contents.

The two surviving members of the Furnham Archæological Expedition eyed each other with new-born but rapidly growing disfavor. Furnham, the leader, flushed with dark anger beneath his coat of deepening dust and sunburn. The accusation was unjust, for he had merely moistened his parched tongue from Langley's canteen. His own canteen, which he had shared equally with his companion, was now empty.

Up to that moment the two men had been the best of friends. Their months of association in a hopeless search for the ruins of the semi-fabulous city of Kobar had given them abundant reason to respect each other. Their quarrel sprang from nothing else than the mental distortion and morbidity of sheer exhaustion, and the strain of a desperate predicament. Langley, at times, was even growing a trifle lightheaded after their long ordeal of wandering on foot through a land without wells, beneath a sun whose flames poured down upon them like molten lead.

"We ought to reach the Tarim river pretty soon," said Furnham stiffly, ignoring the charge and repressing a desire to announce in mordant terms his unfavorable opinion of Langley.

"If we don't, I guess it will be your fault," the other snapped. "There's been a jinx on this expedition from the beginning; and I shouldn't wonder if the jinx were you. It was your idea to hunt for Kobar, anyway. I've never believed there was any such place."

Furnham glowered at his companion, too near the breaking point himself to make due allowance for Langley's nerve-wrought condition, and then turned away, refusing to reply. The two plodded on, ignoring each other with sullen ostentatiousness.

The expedition, consisting of five Americans in the employ of a New York museum, had started from Khotan two months before to investigate the archæological remains of Eastern Turkestan. Ill-luck had dogged them continually; and the ruins of Kobar, their main objective, said to have been built by the ancient Uighurs, had eluded them like a mirage. They had found other ruins, had exhumed a few Greek and Byzantine coins, and a few broken Buddhas; but nothing of much novelty or importance, from a museum viewpoint.

At the very outset, soon after leaving the oasis of Tchertchen, one member of the party had died from gangrene caused by the vicious bite of a Bactrian camel. Later on, a second, seized by a cramp while swimming in the shallow Tarim River, near the reedy marshes of Lob-nor, that strange remnant of a vast inland sea, had drowned before his companions could reach him. A third had died of some mysterious fever. Then, in the desert south of the Tarim, where Furnham and Langley still persisted in a futile effort to locate the lost city, their Mongol guides had deserted them. They took all the camels and most of the provisions, leaving to the two men only their rifles, their canteens, their other personal belongings, the various antique relics they had amassed, and a few tins of food.

CLARK ASHTON SMITH

CLARK ASHTON SMITH is a past master in the art of showing to us forcibly our human limitations. By putting us in comparison with other forms of life, he pictures very vividly that our proud race is but a fumbling, stumbling type of semi-intelligent animal. And even as animals we lack many of the qualities possessed by other forms, such as the detection of smells, sounds, etc., that are unknown to us.

In this story Mr. Smith against throws our adventurers into the arms of a strange but believable form of life. There is nothing bizarre or impossible in the experiences they pass through. And if many people think that these experiences are those in a dream, we have the authority of the eminent scientist, Sir James Jeans, who tells us that our own science is really dreamlike.

The desertion was hard to explain, for the Mongols had heretofore shown themselves reliable enough. However, they had displayed a queer reluctance on the previous day, had seemed unwilling to venture further among the endless undulations of coiling sand and pebbly soil.

Furnham, who knew the language better than Langley, had gathered that they were afraid of something, were deterred by superstitious legends concerning this portion of the Lob-nor Desert. But they had been strangely vague and reticent as to the object of their fear; and Furnham had learned nothing of its actual nature.

Leaving everything but their food, water and rifles to the mercy of the drifting sands, the men had started northward toward the Tarim, which was sixty or seventy miles away. If they could reach it, they would find shelter in one of the sparse settlements of fisherman along its shores; and could eventually make their way back to civilization.

It was now afternoon of the second day of their wander-

ings. Langley had suffered most, and he staggered a little as they went on beneath the eternally cloudless heavens, across the glaring desolation of the dreary landscape. His heavy Winchester had become an insufferable burden, and he had thrown it away in spite of the remonstrance of Furnham, who still retained his own weapon.

The sun had lowered a little, but burned with gruelling rays, tyrannically torrid, through the bright inferno of stagnant air. There was no wind, except for brief and furious puffs that whirled the light sand in the faces of the men, and then died as suddenly as they had risen. The ground gave back the heat and glare of the heavens in shimmering, blinding waves of refraction.

LANGLEY and Furnham mounted a low, gradual ridge and paused in sweltering exhaustion on its rocky spine. Before them was a broad, shallow valley, at which they stared in a sort of groggy wonderment, puzzled by the level and artificial-looking depression, perfectly square, and perhaps a third of a mile wide, which they descried in its center. The depression was bare and empty with no sign of ruins, but was lined with numerous pits that suggested the ground-plan of a vanished city.

The men blinked, and both were prompted to rub their eyes as they peered through the flickering heat-waves; for each had received a momentary impression of flashing light, broken into myriad spires and columns, that seemed to fill the shallow basin and fade like a mirage.

Still mindful of their quarrel, but animated by the same unspoken thought, they started down the long declivity, heading straight toward the depression. If the place were the site of some ancient city they might possibly hope to find a well or water-spring.

They approached the basin's edge, and were puzzled more and more by its regularity. Certainly it was not the work of nature; and it might have been quarried yesterday, for seemingly there were no ravages of wind and weather in the sheer walls; and the floor was remarkably smooth, except for the multitude of square pits that ran in straight, intersecting lines, like the cellars of destroyed or unbuilt houses. A growing sense of strangeness and mystery troubled the two men; and they were blinded at intervals by the flash of evanescent light that seemed to overflow the basin with phantom towers and pillars.

They paused within a few feet of the edge, incredulous and bewildered. Each began to wonder if his brain had been affected by the sun. Their sensations were such as might mark the incipience of delirium. Amid the blasts of furnace-like heat, a sort of icy coolness appeared to come upon them from the broad basin. Clammy but refreshing, like the chill that might emanate from walls of sunless stone, it revived their fainting senses and quickened their awareness of unexplained mystery.

The coolness became even more noticeable when they reached the very verge of the precipice. Here, peering over, they saw that the sides fell unbroken at all points for a depth of twenty feet or more. In the smooth bottom, the cellar-like pits yawned darkly and unfathomably. The floor about the pits was free of sand, pebbles or detritus.

"Heavens, what do you make of that?" muttered Furnham to himself rather than to Langley. He stooped over the edge, staring down with feverish and inconclusive speculations. The riddle was beyond his experience—he had met nothing like it in all his researches. His puzzlement, however, was partly submerged in the more pressing problem of how he and Langley were to descend the sheer walls. Thirst—and the hope of finding water in one of the pits—were more important at that moment than the origin and nature of the square basin.

Suddenly, in his stooping position, a kind of giddiness seized him, and the earth seemed to pitch deliriously beneath his feet. He staggered, he lost his balance, and fell forward from the verge.

Half-fainting, he closed his eyes against the hurtling descent and the crash twenty feet below. Instantly, it seemed, he struck bottom. Amazed and incomprehending, he found that he was lying at full length, prone on his stomach in mid-air, upborne by a hard, flat, invisible substance. His outflung hands encountered an obstruction, cool as ice and smooth as marble; and the chill of it smote through his clothing as he lay gazing down into the gulf. Wrenched from his grasp by the fall, his rifle hung beside him.

He heard the startled cry of Langley, and then realized that the latter had seized him by the ankles and was drawing him back to the precipice. He felt the unseen surface slide beneath him, level as a concrete pavement, glib as glass. Then Langley was helping him to his feet. Both, for the nonce, had forgotten their misunderstanding.

"Say, am I bughouse?" cried Langley. "I thought you were a goner when you fell. What have we stumbled on, anyhow?"

"Stumbled is good," said Furnham reflectively as he tried to collect himself. "That basin is floored with something solid, but transparent as air—something unknown to geologists or chemists. God knows what it is, or where it came from or who put it there. We've found a mystery that puts Kobar in the shade. I move that we investigate."

He stepped forward, very cautiously, still half-fearful of falling, and stood suspended over the basin.

"If you can do it, I guess I can," said Langley as he followed. With Furnham in the lead, the two began to cross the basin, moving slowly and gingerly along the invisible pavement. The sensation of peering down as if through empty air was indescribably weird.

THEY had started midway between two rows of the dark pits, which lay fifty feet apart. Somehow, it was like following a street. After they had gone some little distance from the verge, Furnham deviated to the left, with the idea of looking directly down into one of these mysterious pits. Before he could reach a vertical vantage-point, he was arrested by a smooth, solid wall, like that of a building.

"I think we've discovered a city," he announced. Groping his way along the air-clear wall, which seemed free of angles or roughness, he came to an open doorway. It was about five feet wide and of indeterminable height. Fingering the wall like a blind man, he found that it was nearly six inches thick. He and Langley entered the door, still walking on a level pavement, and advanced without obstruction, as if in a large empty room.

For an instant, as they went forward, light seemed to flash above them in great arches and arcades, touched with evanescent colors like those in fountain-spray. Then it vanished, and the sun shone down as before from a void and desert heaven. The coolness emanating from the un-

known substance was more pronounced than ever; and the men almost shivered. But they were vastly refreshed, and the torture of their thirst was somewhat mitigated.

Now they could look perpendicularly into the square pit below them in the stone floor of the excavation. They were unable to see its bottom, for it went down into shadow beyond the westering sun-rays. But both could see the bizarre and inexplicable object which appeared to float immobile in air just below the mouth of the pit. They felt a creeping chill that was more insidious, more penetrant than the iciness of the unseen walls.

"Now I'm seeing things," said Langley.

"Guess I'm seeing them too," added Furnham.

The object was a long, hairless, light-grey body, lying horizontally, as if in some invisible sarcophagus or tomb. Standing erect, it would have been fully seven feet in height. It was vaguely human in its outlines, and possessed two legs and two arms; but the head was quite unearthly. The thing seemed to have a double set of high, concave ears, lined with perforations; and in place of nose, mouth and chin, there was a long, tapering trunk which lay coiled on the bosom of the monstrosity like a serpent. The eyes—or what appeared to be such—were covered by leathery, lashless and hideously wrinkled lids.

The thing lay rigid; and its whole aspect was that of a well-preserved corpse or mummy. Half in light and half in shadow, it hung amid the funereal, fathomless pit; and beneath it, at some little distance, as their eyes became accustomed to the gloom, the men seemed to perceive another and similar body.

Neither could voice the mad, eerie thoughts that assailed them. The mystery was too macabre and overwhelming and impossible. It was Langley who spoke at last.

"Say, do you suppose they are *all* dead?"

Before Furnham could answer, he and Langley heard a thin, shrill, exiguous sound, like the piping of some unearthly flute whose notes were almost beyond human audition. They could not determine its direction; for it seemed to come from one side and then from another as it continued. Its degree of apparent nearness or distance was also variable. It went on ceaselessly and monotonously, thrilling them with an eeriness as of untrod worlds, a terror as of uncharted dimensions. It seemed to fade away in remote ultramundane gulfs; and then, louder and clearer than before, the piping came from the air beside them.

Inexpressibly startled, the two men stared from side to side in an effort to locate the source of the sound. They could find nothing. The air was clear and still about them; and their view of the rocky slopes that rimmed the basin was blurred only by the dancing haze of heat.

The piping ceased, and was followed by a dead, uncanny silence. But Furnham and Langley had the feeling that someone or something was near them—a stealthy presence that lurked and crouched and drew closer till they could have shrieked aloud with the terror of suspense. They seemed to wait amid the unrealities of delirium and mirage, haunted by some elusive, undeclared horror.

Tensely they peered and listened, but there was no sound or visual ostent. Then Langley cried out, and fell heavily to the unseen floor, borne backward by the onset of a cold and tangible thing, resistless as the launching coils of an anaconda. He lay helpless, unable to move beneath the dead and fluid weight of the unknown incubus, which crushed down his limbs and body and almost benumbed him with an icy chill as of etheric space. Then something touched his throat, very lightly at first, and then with a pressure that deepened intolerably to a stabbing pain, as if he had been pierced by an icicle.

A black faintness swept upon him, and the pain seemed to recede as if the nerves that bore it to his brain were spun like lengthening gossamers across gulfs of anesthesia.

Furnham, in a momentary paralysis, heard the cry of his companion, and saw Langley fall and struggle feebly, to lie inert with closing eyes and whitening face.

Mechanically, without realizing for some moments what had happened, he perceived that Langley's garments were oddly flattened and pressed down beneath an invisible weight. Then, from the hollow of Langley's neck, he saw the spurting of a thin rill of blood, which mounted straight in air for several inches, and vanished in a sort of red mist.

CHAPTER II

Men of the Ultra-Violet

BIZARRE, incoherent thoughts arose in Furnham's mind. It was all too incredible, too unreal. His brain must be wandering, it must have given way entirely . . . but something was attacking Langley—an invisible vampire of this invisible city.

He had retained his rifle. Now he stepped forward and stood beside the fallen man. His free hand, groping in the air, encountered a chill, clammy surface, rounded like the back of a stooping body. It numbed his finger-tips even as he touched it. Then something seemed to reach out like an arm and hurl him violently backward.

Reeling and staggering, he managed to retain his balance, and returned more cautiously. The blood still rose in a vanishing rill from Langley's throat. Estimating the position of the unseen attacker, Furnham raised his rifle and took careful aim, with the muzzle less than a yard away from its hidden mark.

The gun roared with deafening resonance, and its sound died away in slow echoes, as if repeated by a maze of walls. The blood ceased to rise from Langley's neck, and fell to a natural trickle. There was no sound, no manifestation of any kind from the thing that had assailed him. Furnham stood in doubt, wondering if his shot had taken effect. Perhaps the thing had been frightened away, perhaps it was still close at hand, and might leap upon him at any moment, or return to its prey.

He peered at Langley, who lay white and still. The blood was ceasing to flow from the tiny puncture. He stepped toward him, with the idea of trying to revive him, but was arrested by a strange circumstance. He saw that Langley's face and upper body were blurred by a grey mist that seemed to thicken and assume palpable outlines. It darkened apace, it took on solidity and form; and Furnham beheld the monstrous thing that lay prone between himself and his companion, with part of its fallen bulk still weighing upon Langley. From its inertness, and the bullet-wound in its side, whence oozed a viscid purple fluid, he felt sure that the thing was dead.

The monster was alien to all terrestrial biology—a huge, invertebrate body, formed like an elongated starfish, with

the points ending in swollen tentacular limbs. It had a round, shapeless head with the curving, needle-tipped bill of some mammoth insect. It must have come from other planets or dimensions than ours. It was wholly unlike the mummified creature that floated in the pit below, and Furnham felt that it represented an inferior animal-like type. It was evidently composed of an unknown order of organic matter that became visible to human eyes only in death.

His brain was swamped by the mad enigma of it all. What was this place upon which he and Langley had stumbled? Was it an outpost of worlds beyond human knowledge or observation? What was the material of which these buildings had been wrought? Who were their builders? Whence had they come and what had been their purpose? Was the city of recent date or was it, perhaps, a sort of ruin, whose builders lay dead in its vaults—a ruin haunted only by the vampire monster that had assailed Langley?

Shuddering with repulsion at the dead monster, he started to drag the still unconscious man from beneath its loathsome mass. He avoided touching the dark, semi-translucent body, which lapsed forward, quivering like a stiff jelly, when he had pulled his companion away from it.

Like something very trivial and far away, he remembered the absurd quarrel which Langley had picked with him, and remembered his own resentment as part of a doubtful dream, now lost in the extra-human mystery of their surroundings. He bent over his comrade, anxiously, and saw that some of the natural tan was returning to the pale face and that the eyelids were beginning to flutter. The blood had clotted on the tiny wound. Taking Langley's canteen, he poured the last of its contents between the owner's teeth.

In a few moments Langley was able to sit up. Furnham helped him to his feet, and the two began to cross their way from the crystal maze.

They found the doorway; and Furnham, still supporting the other, decided to retrace their course along the weird street by which they had started to cross the basin. They had gone but a few paces when they heard a faint, almost inaudible rustling in the air before them, together with a mysterious grating noise. The rustling seemed to spread and multiply on every hand, as if an invisible crowd were gathering; but the grating soon ceased.

They went on, slowly and cautiously, with a sense of imminent, uncanny peril. Langley was now strong enough to walk without assistance; and Furnham held his cocked rifle ready for instant use. The vague rustling sounds receded, but still encircled them.

MIDWAY between the underlying rows of pits, they moved on toward the desert precipice, keeping side by side. A dozen paces on the cold, solid pavement, and then they stepped into empty air and landed several feet below with a terrific jar, on another hard surface. It must have been the top of a flight of giant stairs; for, losing their balance, they both lurched and fell, and rolled downward along a series of similar surfaces, and lay stunned at the bottom.

Langley had been rendered unconscious by the fall; but Furnham was vaguely aware of several strange, dream-like phenomena. He heard a faint, ghostly, sibilant rustling, he felt a light and clammy touch upon his face, and smelled an odor of suffocating sweetness, in which he seemed to sink as into an unfathomable sea. The rustling died to a vast and spatial silence; oblivion darkened above him; and he slid swiftly into nothingness.

It was night when Furnham awoke. His first impression was the white dazzle of a full moon shining in his eyes. Then he became aware that the circle of the great orb was oddly distorted and broken, like a moon in some cubistic painting. All around and above him were bright, crystalline angles, crossing and intermingling—the outlines of a translucent architecture, dome on dome and wall on wall. As he moved his head, showers of ghostly irises—the lunar yellow and green and purple—fell in his eyes from the broken orb and vanished.

He saw that he was lying on a glass-like floor, which caught the light in moving sparkles. Langley, still unconscious, was beside him. Doubtless they were still in the mysterious oubliette down whose invisible stairs they had fallen. Far off, to one side, through a mélange of the transparent partitions, he could see the vague rocks of the Gobi, twisted and refracted in the same manner as the moon.

Why, he wondered, was the city now visible? Was its substance rendered perceptible, in a partial sort of way by some unknown ray which existed in moonlight but not in the direct beams of the sun? Such an explanation sounded altogether too unscientific; but he could not think of any other at the moment.

Rising on his elbow, he saw the glassy outlines of the giant stairs down which he and Langley had plunged. A pale, diaphanous form, like a phantom of the mummified creature they had seen in the pit, was descending the stairs. It moved forward with fleet strides, longer than those of a man, and stooped above Furnham with its spectral trunk waving inquisitively and poising an inch or two from his face. Two round, phosphorescent eyes emitting perceptible beams like lanterns, glowed solemnly in its head above the beginning of the proboscis.

The eyes seemed to transfix Furnham with their unearthly gaze. He felt that the light they emitted was flowing in a ceaseless stream into his own eyes—into his very brain. The light seemed to shape itself into images, formless and incomprehensible at first, but growing clearer and more coherent momently. Then, in some indescribable way, the images were associated with articulate words, as if a voice were speaking: words that he understood as one might understand the language of dreams.

"We mean you no harm," the voice seemed to say. "But you have stumbled upon our city; and we cannot afford to let you escape. We do not wish to have our presence known to men.

"We have dwelt here for many ages. The Lob-nor desert was a fertile realm when we first established our city. We came to your world as fugitives from a great planet that once formed part of the solar system—a planet composed entirely of ultra-violent substances, which was destroyed in a terrible cataclysm. Knowing the imminence of the catastrophe, some of us were able to build a huge space-flier, in which we fled to the Earth. From the materials of the flier, and other materials we had brought along for the express purpose, we built our city

whose name, as well as it can be conveyed in human phonetics, is Ciis.

"The things of your world have always been plainly visible to us; and, in fact, due to our immense scale of perceptions, we probably see much that is not manifest to you. Also, we have no need of artificial light at any time. We discovered, however, at an early date, that we ourselves and our buildings were invisible to men. Strangely enough, our bodies undergo in death a degeneration of substance which brings them within the infra-violet range; and thus within the scope of your visual cognition."

The voice seemed to pause, and Furnham realized that it had spoken only in his thoughts by a sort of telepathy. In his own mind, he tried to shape a question:

"What do you intend to do with us?"

Again he heard the still, toneless voice:

"We plan to keep you with us permanently. After you fell through the trap-door we had opened, we overpowered you with an anesthetic; and during your period of unconsciousness, which lasted many hours, we injected into your bodies a drug which has already affected your vision, rendering visible, to a certain degree, the ultra-violet substances that surround you. Repeated injections, which must be given slowly, will make these substances no less plain and solid to you than the materials of your own world. Also, there are other processes to which we intend to subject you . . . processes that will serve to adjust and acclimate you in all ways to your new surroundings."

BEHIND Furnham's weird interlocutor, several more fantasmal figures had descended the half-visible steps. One of them was stooping over Langley, who had begun to stir and would recover full consciousness in a few instants. Furnham sought to frame other questions, and received an immediate reply.

"The creature that attacked your companion was a domestic animal. We were busy in our laboratories at the time, and did not know of your presence till we heard the rifle shots.

"The flashes of light which you saw among our invisible walls on your arrival were due to some queer phenomenon of refraction. At certain angles the sunlight was broken or intensified by the molecular arrangement of the unseen substance."

At this juncture Langley sat up, looking about him in a bewildered fashion.

"What the hell is all this, and where the hell are we?" he inquired as he peered from Furnham to the people of the city.

Furnham proceeded to explain, repeating the telepathic information he had just received. By the time he had ceased speaking, Langley himself appeared to become the recipient of some sort of mental reassurance from the phantom-like creature who had been Furnham's interlocutor; for Langley stared at this being with a mixture of enlightenment and wonder in his expression.

Once more there came the still, super-auditory voice, fraught now with imperious command.

"Come with us. Your initiation into our life is to begin immediately. My name is Aispha—if you wish to have a name for me in your thoughts. We ourselves, communicating with each other without language, have little need for names; and their use is a rare formality among us. Our generic name, as a people, is the Tiisins."

Furnham and Langley arose with an unquestioning alacrity, for which afterwards they could hardly account, and followed Aispha. It was as if a mesmeric compulsion had been laid upon them. Furnham noted, in an automatic sort of way, as they left the oubliette, that his rifle had vanished. No doubt it had been carefully removed during his period of insensibility.

He and Langley climbed the high steps with some difficulty. Queerly enough, considering their late fall, they found themselves quite free of stiffness and bruises; but at the time they felt no surprise—only a drugged acquiescence in all the marvels and perplexities of their situation.

They found themselves on the outer pavement, amid the bewildering outlines of the luminous buildings which towered above them with intersections of multiform crystalline curves and angles. Aispha went on without pause, leading them toward the fantastic serpentine arch of an open doorway in one of the tallest of these edifices, whose pale domes and pinnacles were heaped in immaterial splendor athwart the zenith-nearing moon.

Four of the ultra-violet people—the companions of Aispha—brought up the rear. Aispha was apparently unarmed; but the others carried weapons like heavy-bladed and blunt-pointed sickles of glass or crystal. Many others of this incredible race, intent on their own enigmatic affairs, were passing to and fro in the open street and through the portals of the unearthly buildings. The city was a place of silent and fantasmal activity.

At the end of the street they were following, before they passed through the arched entrance, Furnham and Langley saw the rock-strewn slope of the Lob-nor, which seemed to have taken on a queer filminess and insubstantiality in the moonlight. It occurred to Furnham, with a sort of weird shock, that his visual perception of earthly objects, as well as of the ultra-violet city, was being affected by the injections of which Aispha had told him.

The building they now entered was full of apparatuses made in the form of distorted spheres and irregular disks and cubes, some of which seemed to change their outlines from moment to moment in a confusing manner. Certain of them appeared to concentrate the moonlight like ultra-powerful lenses, turning it to a fiery, blinding brilliance. Neither Furnham nor Langley could imagine the purpose of these devices; and no telepathic explanation was vouchsafed by Aispha or any of his companions.

As they went on into the building there was a queer sense of some importunate and subtle vibration in the air, which affected the men unpleasantly. They could not assign its source nor could they be sure whether their own perception of it was purely mental or came through the avenues of one or more of the physical senses. Somehow it was both disturbing and narcotic; and they sought instinctively to resist its influence.

The lower story of the edifice was seemingly one vast room. The strange apparatuses grew taller about them, rising as if in concentric tiers as they went on. In the huge dome above them, living rays of mysterious light appeared to cross and re-cross at all angles of incidence, weaving a bright, ever-changing web that dazzled the eye.

CHAPTER III

The End of Ciis

THEY emerged in a clear, circular space at the center of the building. Here ten or twelve of the ultra-violet people were standing about a slim column, perhaps five feet high, that culminated in a shallow basin-like formation. There was a glowing oval-shaped object in the basin, large as the egg of some extinct bird. From this object, numerous spokes of light extended horizontally in all directions, seeming to transfix the heads and bodies of those who stood in a loose ring about the column. Furnham and Langley became aware of a high, thin, humming noise which emanated from the glowing egg and was somehow inseparable from the spokes of light, as if the radiance had become audible.

Aispha paused facing the men; and a voice spoke in their minds.

"The glowing object is called the Doir. An explanation of its real nature and origin would be beyond your present comprehension. It is allied, however, to that range of substances which you would classify as minerals; and is one of a number of similar objects which existed in our former world. It generates a mighty force which is intimately connected with our life-principle; and the rays emanating from it serve us in place of food. If the Doir were lost or destroyed, the consequences would be serious; and our life-term, which normally is many thousand years, would be shortened for want of the nourishing and revivifying rays."

Fascinated, Furnham and Langley stared at the egg-shaped orb. The humming seemed to grow louder; and the spokes of light lengthened and increased in number. The men recognized it now as the source of the vibration that had troubled and oppressed them. The effect was insidious, heavy, hypnotic, as if there were a living brain in the object that sought to overcome their volition and subvert their senses and their minds in some unnatural thralldom.

They heard the mental command of Aispha:

"Go forward and join those who partake of the luminous emanations of the Doir. We believe that by so doing you will, in course of time, become purged of your terrestrial grossness; that the very substance of your bodies may eventually be transformed into something not unlike that of our own; and your senses raised to a perceptional power such as we possess."

Half unwillingly, with an eerie consciousness of compulsion, the men started forward.

"I don't like this," said Furnham in a whisper to Langley. "I'm beginning to feel queer enough already." Summoning his utmost will power he stopped short of the emanating rays and put out his hand to arrest Langley.

With dazzled eyes, they stood peering at the Doir. A cold, restless fire, alive with some nameless evil that was not akin to the evil of Earth, pulsated in its heart; and the long, sharp beams, quivering slightly, passed like javelins into the semi-crystalline bodies of the beings who stood immobile around the column.

"Hasten!" came the unvocal admonition of Aispha. "In a few moments, the force in the Doir, which has a regular rhythm of ebb and flow, will begin to draw back upon itself. The rays will be retracted; and you will have to wait for many minutes before the return of the emanation."

A quick, daring thought had occurred to Furnham. Eyeing the Doir closely, he had been impressed by its seeming fragility. The thing was evidently not attached to the basin in which it reposed; and in all likelihood it would shatter like glass if hurled or even dropped on the floor. He tried to suppress his thought, fearing that it would be read by Aispha or others of the ultra-violet people. At the same time, he sought to phrase, as innocently as possible a mental question:

"What would happen if the Doir were broken?"

Instantly he received an impression of anger, turmoil and consternation in the mind of Aispha. His question, however, was apparently not answered; and it seemed that Aispha did not want to answer it—that he was concealing something too dangerous and dreadful to be revealed. Furnham felt, too, that Aispha was suspicious, had received an inkling of his own repressed thought.

It occurred to him that he must act quickly if at all. Nerving himself, he leaped forward through the ring of bodies about the Doir. The rays had already begun to shorten slightly; but he had the feeling of one who hurls himself upon an array of lance-points. There was an odd, indescribable sensation, as if he were being pierced by something that was both hot and cold; but neither the warmth nor the chill was beyond endurance. A moment, and he stood beside the column, lifting the glowing egg in his hands and poising it defiantly as he turned to face the ultra-violet people.

The thing was phenomenally light; and it seemed to burn his fingers and to freeze them at the same time. He felt a strange vertigo, an indescribable confusion; but he succeeded in mastering it. The contact of the Doir might be deadlier to the human tissues than that of radium for aught he knew. He would have to take his chances. At any rate it would not kill him immediately; and if he played his cards with sufficient boldness and skill, he could make possible the escape of Langley—if not his own escape.

THE ring of ultra-violet beings stood as if stupefied by his audacity. The retracting spokes of light were slowly drawing back into the egg; but Furnham himself was still impaled by them. His fingers seemed to be growing translucent where they clutched the weird ball.

He met the phosphoric gaze of Aispha, and heard the frantic thoughts that were pouring into his mind, not only from Aispha but from all the partakers of the Doir's luminous beams. Dread, unhuman threats, desperate injunctions to return the Doir to its pedestal, were being laid upon him. Rallying all his will, he defied them.

"Let us go free," he said mentally addressing Aispha. "Give me back my weapon and permit my companion and me to leave your city. We wish you no harm; but we cannot allow you to detain us. Let us go—or I will shatter the Doir—will smash it like an egg on the floor."

At the shaping of his destructive thought, a shudder passed among the semi-spectral beings; and he felt the dire fear that his threat had aroused in them. He had been right: the Doir *was* fragile; and some awful catastrophe, whose nature he could not quite determine, would ensue instantly upon its shattering.

Step by step, glancing frequently about to see that no

one approached him by stealth from behind, Furnham returned to Langley's side. The Tiisins drew back from him in evident terror. All the while he continued to issue his demands and comminations:

"Bring the rifle quickly . . . the weapon you took from me . . . and give it into my companion's hands. Let us go without hindrance or molestation—or I will drop the Doir. When we are outside the city, one of you—one only—shall be permitted to approach us, and I will deliver the Doir to him."

One of the Tiisins left the group to return in less than a minute with Furnham's Winchester. He handed it to Langley, who inspected the weapon carefully and found that it had not been damaged or its loading or mechanism tapered with in any way. Then, with the ultra-violet creatures following them in manifest perturbation, Furnham and Langley made their way from the building and started along the open street in the general direction (as Langley estimated from the compass he carried) of the Tarim river.

They went on amid the fantastic towering of the crystalline piles; and the people of the city, called as if by some unworded summons, poured from the doorways in an ever-swelling throng and gathered behind them. There was no active demonstration of any overt kind; but both the men were increasingly aware of the rage and consternation that had been aroused by Furnham's audacious theft of the Doir—a theft that seemed to be regarded in the light of actual blasphemy.

The hatred of the Tiisins, like a material radiation—dark, sullen, stupefying, stultifying, beat upon them at every step. It seemed to clog their brains and their feet like some viscid medium of nightmare; and their progression toward the Gobi slope became painfully slow and tedious.

Before them, from one of the buildings, a tentacled, starfish monster, like the thing that had assailed Langley, emerged and lay crouching in the street as if to dispute their passage. Raising its evil beak, it glared with filmy eyes, but slunk away from their approach as if at the monition of its owners.

Furnham and Langley, passing it with involuntary shivers of repugnance, went on. The air was oppressedwith alien, unformulable menace. They felt an abnormal drowsiness creeping upon them. There was an unheard, narcotic music, which sought to overcome their vigilance, to beguile them into slumber.

Furnham's fingers grew numb with the unknown radiations of the Doir, though the sharp beams of light, by accelerative degrees, had withdrawn into its center, leaving only a formless misty glow that filled the weird orb. The thing seemed latent with terrible life and power. The bones of his transparent hand were outlined against it like those of a skeleton.

Looking back, he saw that Aispha followed closely, walking in advance of the other Tiisins. He could not read the thoughts of Aispha as formerly. It was as if a blank, dark wall had been built up. Somehow he had a premonition of evil—of danger and treachery in some form which he could not understand or imagine.

He and Langley came to the end of the street, where the ultra-violet pavement joined itself to the desert acclivity. As they began their ascent of the slope both men realized that their visual powers had indeed been affected by the injective treatment of the Tiisins: for the soil seemed to glow beneath them, faintly translucent; and the boulders were like semi-crystalline masses, whose inner structure they could see dimly.

Aispha followed them on the slope; but the other people of Ciis, as had been stipulated by Furnham, paused at the juncture of their streets and buildings with the infra-violet substances of Earth.

After they had gone perhaps fifty yards on the gentle acclivity, Furnham came to a pause and waited for Aispha, holding out the Doir at arm's length. Somehow he had a feeling that it was unwise to return the mystic egg; but he would keep his promise, since the people of Ciis had kept their part of the bargain so far.

Aispha took the Doir from Furnham's hands; but his thoughts whatever they were remained carefully shrouded. There was a sense of something ominous and sinister about him as he turned and went back down the slope with the fiery egg shining through his body like a great watchful eye. The beams of light were beginning to emanate from its center once more.

The two men, looking back ever and anon, resumed their journey. Ciis glimmered below them like the city of a mirage in the moonlit hollow. They saw the ultra-violet people crowding to await Aispha at the end of their streets.

Then, as Aispha neared his fellows two rays of cold, writhing fire leaped forth from the base of a tower that glittered like glass at the city's verge. Clinging to the ground, the rays ran up the slope with the undulant motion of pythons, following Langley and Furnham at a speed that would soon overtake them.

"They're doublecrossing us!" warned Furnham. He caught the Winchester from Langley, dropped to his knees and aimed carefully, drawing a bead on the luminous orb of the Doir through the spectral form of Aispha, who had now reached the city and was about to enter the waiting throng.

"Run!" he called to Langley. "I'll make them pay for their treachery; and perhaps you can get away in the meanwhile."

He pulled the trigger, missing Aispha but dropping at least two of the Tiisins who stood near the Doir. Again, steadily, he drew bead, while the rays from the tower serpentined onward, pale, chill and deadly-looking, till they were almost at his feet. Even as he aimed, Aispha took refuge in the foremost ranks of the crowd, through whose filmy bodies the Doir still glowed.

This time the high-powered bullet found its mark, though it must have passed through more than one of the ultra-violet beings before reaching Aispha and the mystic orb.

Furnham had hardly known what the result would be, but he had felt sure that some sort of catastrophe would ensue the destruction of the Doir. What really happened was incalculable and almost beyond description.

Before the Doir could fall from the hands of its stricken bearer, it seemed to expand in a rushing wheel of intense light, revolving as it grew, and blotting out the forms of the ultra-violet people in the foreground. With awful velocity, the wheel struck the nearer buildings, which appeared to soar and vanish like towers of fading mirage. There was no audible explosion—no sound of any kind—only that silent, ever-spinning, ever-widening disk of light

(*Continued on page 86*)

THE HELL PLANET

By **Leslie F. Stone**

(*Illustration by Paul*)

Jimson leaned over Morgan and picked him up. He bent weirdly in the middle. "It's in the bones," he explained.

THE HELL PLANET

by the author of "Men With Wings," etc.

"THERE he is. Lord! what a hot little place. Can't say I look forward to landing there particularly. Rather well named, what? Vulcan, master of the forge, maker of the armor of the mighty gods from the white heat of the flame!

"It's the find of the century, Gorely, no question of that, if only it yields a third the amount of *cosmicite** Wendell says it will. If so we'll be multi-millionaires after this trip."

"Well, at least, we won't be in the same straits that the Sellers crowd were. We know what we're up against with Wendell on hand. What a fight he must have put up to come through alone."

"Hush . . . here he comes . . ."

The pair, Tom Gorley and Jack Morgan, were standing in the forward turret of the space ship *Adventure*. Both were seasoned explorers as were all Captain Timothy Beale's crew. They had been in many odd places together, to Diane on the very edge of the solar system, but this was their first time so close to Sol, beyond Mercury. They wore the dark glasses and insulated refrigerated suits necessary scarcely more than twenty-five millions of miles from the sun.

The refrigerant units of the *Adventure*, despite the heat insulating coating of *cosmicite*, were hard taxed to keep a liveable temperature within the shell of the space flyer, but the men were not heeding the heat. They were looking forward to their descent upon the orphan of the solar system, Vulcan, innermost planet, discovered by the crew of the *Corsair* four months before.

Astronomically speaking, Vulcan had for many years in the past been conceded as a possibility by scientists. The perihelion of the orbit of Mercury moves somewhat faster than it should if the planet were acted upon only by known forces, and this fact had led astronomers to believe in an intra-Mercurian planet. The peculiarity of Mercury's motion pointed toward an attraction of a planet whose orbit lay between that world and the sun. A planet in this position could be observed only with difficulty, for its elongation from the sun would always be small. Several times in the past it was supposed to have been observed, yet others disputed the truth of such a discovery. Naturally it would be next to impossible to see this tiny planet against the glare of the sun's disc.

It had taken Captain Boris Sellers to find it, but he had not survived his discovery. Every man of his crew had died a horrible death, except Bill Wendell who alone managed to pilot the *Corsair* back to Earth with its gruesome burden of dead men, and his tale of discovery. That awful journey had left its mark on him as one could see at a glance, as he came into the *Adventure's* turret.

Although only thirty-four he looked a man of sixty. His hair had turned snowy white, his eyes were dimmed, still filled with some nameless horror which lurked in their depths. Heavy lines creased the flesh about his mouth; and his walk was that of a man whose body is tortured by the pains of senility.

Only the lure of the vast deposits of *cosmicite*, that priceless metal without which no ship could dare travel the void, had brought him back to Vulcan. He had the guarantee that half the wealth the *Adventure* would unearth would go to him and to the families of those men who had lost their lives on the ill-fated journey of discovery.

The men of the *Adventure* were diffident about addressing Wendell. He seemed to move in a world of his own, annoyed if others sought intrusion there. But today was different—he had come seeking the company of those in the turret.

He stood gazing out the thick port giving view to the world they were approaching. The window, like all the shell, was daubed with a covering of *cosmicite* put on with a spray so that it was so thin as to be transparent. But for that coating, the crew of the *Adventure* could not have withstood the terrible emanations of the cosmic and heat rays that pervaded space.

The discovery of *cosmicite* is a story in itself. One remembers the first intrepid space explorers who lost their lives in attempting to conquer space with no knowledge

LESLIE F. STONE

MANY amateur authors, with little knowledge of the complexities of the problem, have pictured men going from one world to another and quite facilely adapting themselves to entirely new conditions. These authors blithely feel that men could live anywhere; if there be only food of a kind and some breathable air.

Miss Stone takes quite a different view of that. She believes we should look on the problem of interplanetary travel realistically, and realize that the attempt to gain a foothold on a new world may be fraught with the most terrific of dangers and difficulties.

And then she asks in this story, "Why should we go to another world?" Is it, as she says, "Man's damnable desire to conquer, to nose in where he doesn't belong . . ." Our readers can answer this question for themselves; but this stirring tale gives in no uncertain terms our author's feelings on the matter.

*Cosmicite seems to have been that rare metal possessing the ability to absorb and reflect practically all rays, no matter what their wavelength. Its use on earth as a heat-insulator would have been revolutionary if sufficient quantities were to be had.

of the danger they faced when they plunged out of the Earth's atmospheric blanket. Oddly enough the man who discovered the only material impervious to the dangerous rays was one by the name of John Cosmo!

"A few hours and we'll be there," Wendell was saying in his quavering voice more to himself than those in the chamber with him. "Vulcan, the monster itself in beauty, festering in poison . . . Sellers, Tomlin, Berber, Keep, Lassier, Morton, Chin . . . all dead . . . and only I am alive to tell the story!"

"But you found the mines, didn't you?" Gorely asked timidly, suddenly realizing how little they knew of what lay before them. Wendell had, of course, explained everything to Captain Beale, but for the most part the men were ignorant of what they were to face. Men of space never asked questions; their trust lay in their leaders.

Wendell looked up in surprise at the other's voice. He studied the man before him as if seeing him for the first time in his life, though purposely he had come here seeking companionship.

"THE mines . . .the . . . oh, you mean the *cosmicite* mines. No! We did not find the mines. The natives had it. Ingots of it, statues, shields, arrows and spears tipped with it . . . they worship it like a god! *Cosmicite. Dasie* they called it. Believed it protected them from their enemies. A backward people, but they mined the metal.

"And they thought we were gods. A kindly people. They wined and dined us . . . only not me. I had a bad stomach, a recurrence of sickness of years back. I was confined to the *Corsair,* on a soft diet . . . too sick to eat or walk. I was put out by it, I imagined my companions receiving gifts I could not share. I was jealous! I avoided them.

"The fourth day I felt better. I went out to meet them as they came into the ship laden with gifts—strange fruits, meats, wines and *cosmicite.* I picked up a bunch of fruit that resembled grapes. I ate one. Then . . . then Berber, my buddy . . . he pitched to the floor screaming and retching. He was sick, something was tearing at his vitals, he said . . . he was burning up . . . fever. A few minutes and he could not speak. We carried him to his berth, dosed him up . . . then Lassier was taken sick. We put him to bed, but he wasn't the last. Another and another were taken ill . . . then the captain.

"There were only yellow Chin and I left to treat our fellows. We went from one to another giving medicine that seemed to do no good. Berber could not raise his chest to breathe now. It . . . it was as if his bones could no longer support the flesh . . . they were rotting away! The others were the same. Now Chin could no longer walk. Oh it was . . . damnable. My friends dying . . . I unable to ease them. Berber died, then Lassier . . . they all died before my eyes. Captain Sellers alone knew what it was . . . he told me . . . the fruit, the water . . . all poison. It was radium . . . the soil, the water, the growing things . . . even the natives were impregnated with it . . . and it was too rich in solution for men of Earth. It was killing them.

"I remembered the single grape I had eaten . . . I thought I felt stomach pangs already, but I had to stand by and listen to Captain Sellers telling me what to do. 'They think us gods,' he said, speaking of the natives. 'They must not know of this . . . that we die. You, Wendell, take the *Corsair* back home with all of us in it! You must not bury us here . . . There is a fortune on Vulcan . . . it is stupendous. *Cosmicite* is scarce throughout the solar worlds, but this planet is filthy with it . . . and radium . . . you must get home . . . tell others what we have seen . . . bring an expedition to mine it. Treat the natives well . . . they may be induced to tell where their mines lay . . . then all the solar system will be ours . . . thousands of space flyers can be built in place of the paltry fifty or sixty now in existence . . . but let no man *eat or drink of this world!*'

"He said more, then began to babble, and like the others it grew difficult for him to breathe. I turned away, forced my stomach to give up that bit of fruit I had eaten. I was frantic with the moans of my fellow-men in my ears. Men dying like flies . . ." He lasped into silence while he remembered.

After a pause the young-old man began to speak again. "I tried my best to ease their pain, some died more quickly than others . . . according to the proportion in which they had eaten the food of the natives. But they had had four days of it. Sellers was last to go, though quite out of his head by then. It was not easy to drive the *Corsair* without help, to plot my course and watch out for meteorites. It meant days of continual vigilance at the controls. And there were the bodies of my fellows below.

"I could not move them . . . they were already rotting . . . putrefaction had set in almost immediately with their passing. I could only cover them with sheets . . . soon the ship smelled like a charnel house.

"And I began to feel real pains in my stomach. The single grape had poured poison into my system before I got rid of it. Lucky that I had eaten no more . . . else I would not be here to tell the tale. I suffered . . . my stomach was a fiery pit, my head spun like a top, my knees were weak, and with it all I had to stay at my controls. I fought it off somehow . . . as a result I am a sick man for the rest of my days. I . . . well here I am back for more . . . and if you value your lives, men, if you do not want to die an evil death, do not be tempted by the sweet luscious fruit and sparkling waters of Vulcan . . . it's . . ."

He would have said more but Jimson, Beale's lieutenant, had appeared in the doorway. "Mr. Wendell," he called, "the captain wants to see you in the control-room."

Wendell went with him. Beale was studying the world that rapidly edged closer. They had come halfway around the sun to meet it, and now Vulcan lay in quadrature to them, its first quarter, showing them half its illuminated side. At most it was but 1200 miles in diameter, a small world whose mass was surprisingly great in proportion to its size. Wendell had already explained to Beale that Vulcan's surface gravity was in excess of that felt by men of Earth when upon the moon. That was because it was made up of the heaviest of metals. Now the captain wanted to know if Wendell knew where they were to land.

In half an hour the little world looked like a bowl with its upturned edges. They were circling it, passing from the light into the darkness twice. They saw it had no really large areas of water. There were innumerable lakes and rivers, but nothing that could be rightfully called a sea. There were mountains in one hemisphere, but for the most it was flat or slightly rolling country. One thing was particularly noticeable about the night side,

the fact that the vegetation gave off a ghostly light, glowed of itself like phosphorus. The lakes were molten silver, the jungles a riot of wild color.

AS they dropped closer Beale saw that landing was to be a problem. Never had he seen a more fecund world. Nowhere could they see the ground, so heavily was it grown with tall spiky trees, fleshy vines and spreading shrubs. Even the banks of the waterways were overgrown, heavy with life. At Beale's query, Wendell shook his head. Just so had the *Corsair* found Vulcan. They could blast an opening in the trees for themselves, but if they wished to find natives it would be best to cruise about until they sighted a clearing, a man-made clearing.

By laboriously pulling out the trees, the men of Vulcan made a council-hall for themselves. In one of these clearings the *Corsair* had found a ready berth, nor had the natives appeared to resent their using it. The *Corsair* had found the village near the north pole. Wendell had left too hurriedly to be sure of finding it again, but he imagined they could find another like it.

Every man able to get near a port-hole was made a lookout. Twice they circled Vulcan again and were rewarded. A circular opening in the jungle lay below, just large enough for the *Adventure* to fit with little room to spare. Wendell did not believe it the same clearing in which the *Corsair* had landed, but it was likely enough with a promise of a village nearby.

With wondering eyes the men stared at the queer life about them, for it was even stranger than it had appeared from above. The trees were for the most part a hundred feet high, straight, slender with trunks that resembled those of a palm tree: smooth, glistening, barkless; but the branches that jutted from their crowns were unlike anything they had ever seen. They were long, stiff, needle-pointed spikes with a feathery lacy froth of needles. The branches were no more than three to four feet in length, solitary and uncrowded. The only shade cast by the whole tree was the straight unvarying image of its pole-like length.

Vines clung somehow to the unyielding trees, vines that dropped festoons of needles from their length linking the jungle trees together. Around the trees was growing a veritable mat of stiff-stalked young trees; bushes, stocky plants, all with underdeveloped spiky leaves and branches. Only on the ground was there a growth with a fleshier leaf—broad and flat, prone to the soil. The bushes mostly resembled palmettos and cacti.

Nature, at first lavish, had turned about-face and with niggardly hand finished her work, stinting the land of her natural abundance. Then she had remembered and was more prolific, for on each tree, weighing down the vines, bending the backs of the shrubs, palmettos and cacti were the fruit clusters. Red, yellow, blue, orange, green they were; long banana-shaped fruit, globulars of all sizes, berries, melons—round, oval, cylindrical, every shape and form; luscious peaches, over-sized pears, mouth-watering berries, scarlet cherries, purple grapes, juicy plums, golden oranges . . . all were here in wild profusion, in wild fecundity.

"It's the sun," explained Wendell. "Were the leaves of the trees broad they would absorb too much vitality beside that already partaken of from the radioactive soil, hence they would shrivel and die under the glare of the white-hot sun. Nature can be more prodigal with the fruit because there are enough to make use of it . . . See . . ." He pointed out flocks of tiny birds, no larger than humming birds darting among the fruit, the swarms of insects feeding in armies, the dainty head of some animal feeding on fruit fallen to the ground.

Another creature that looked like a cross between a bear and a monkey was climbing a tall tree toward an especially appetizing cluster of fruit hanging by a slender cord from a vine. The fruit proved just out of reach of the animal, but with infinite patience the bear angled for the prize with long forelegs. At last, unable to gain the fruit by that means, it let go its hold upon the tree-trunk to make a lunge for the fruit cluster, and landed upon it with all four feet. The vine held and the animal went about the prosaic business of harvesting its dinner without a care as to what would happen when it ate away its support.

A shadow fell against the trees and ground. Glancing up the men saw an unusually large, brightly-plumaged bird plunging downward. Through the thick walls of the ship they could not hear its cry, but they could see its paralyzing effect upon the flock of humming birds which for the nonce seemed suspended on quivering wings unable to move forward or backward. The killer had time to swoop down, gobble a third of their number before their brains began to function properly again, and they could escape. The big fellow made no attempt to follow. He simply turned to the fruit nearest at hand and commenced to gorge himself.

Beale and Jimson, standing with Wendell, grew aware of even more life in the jungle. Birds of every size and description flew through the trees, creatures lurked among the vines, snakes and tiny furred things raced up and down tree trunks and vines, flinging themselves through the air. There was life on the ground, peering from between the heavy, thick leaves of the vines that crawled upon the earth's bosom. Suddenly Wendell was pointing out a strange apparition to his companions.

It stood staring back at them from between two tree trunks, a creature five feet tall, upright on two legs. It had a small pointed face that was fox-like, yet faintly resembled a human face! The head was round, bulging upward from heavy beetling brows. The ears that came to a point at the top were set on the side of the head slightly below the level of the large black eyes. The nose was long, pointed—the cheeks and jowls sloped forward adding to its animal-like appearance. The mouth was wide, the chin rather heavy-set, incongruous looking to the rest of the face, giving it its humanness that was otherwise lacking except in the rather intelligent set of the large beady black eyes.

CHAPTER II

Men of Vulcan

THE face and body were bare of hair, the skin a slate brown. The body was proportionately slender to its height, in repose it leaned forward so that the thin arms dangled below the knee. Hands like the face were free of fur, delicately-boned, almost claws.

"It's the man of Vulcan," averred Wendell. "Or at least we called it a man, for such were the creatures we encountered before. This clearing is their meeting hall.

They live back among the trees. If these little fellows are like the others they will have *cosmicite* in plenty!" He was excited.

"What shall we do?" queried Beale.

"Nothing. Wait. More will come. They are peaceable, or so the others were. Let them see we mean no harm. Let the men stay at the windows—come and go—act natural."

For two days no attempt was made to communicate with the strange little "men" of Vulcan. All the crew were now familiar with their bizarre appearance, their fox-like faces, their twitching ears that always seemed in movement, their stiff gawky walk, their strangely shiny bodies. For the most part they seemed unarmed, only a few carried a strange type of ridiculously small bows and arrows. What interested the Tellurians the most was the fact that the arrows and a few spears that appeared now and then were tipped with white metal *cosmicite!* The metal seemed in common use among the Vulcanites, yet at the same time was held in veneration. They wore strings of it about their necks from which dangled either round nuggets of the same material, or tiny, crudely-carved figurines, amulets. They wore queer elbow and knee-shields of *cosmicite*, curved plates that fitted over the joints and were held in place with thongs. Some had bits of *cosmicite* wire twisted about both head and body, and a few carried broad round shields of it on the left arm.

The very inactivity of the *Adventure's* crew seemed to have gained the confidence of the natives. They had drawn nearer and nearer to the space ship, studying its exterior first from afar, then dared to lay reverent hands upon its shell. They appeared to have discovered that it was coated with *cosmicite*, and this homely truth had wiped away the last vestige of their fear. They could understand that!

One little fellow, more daring than the rest, enticed two of his fellows to form a living ladder for him to climb upon their shoulders. That brought him up to the level of one port-hole in the ship's side. There were two of the men within, and for several moments the three stared at each other—the two curious, the fox-man awed by his own daring. From them his eyes flitted to the room beyond. For the moment the savage forgot everything else as he stared at the strange furnishings. Then suddenly he swayed and toppled from their sight. His ladder had given way!

He picked himself up, and they saw him racing across the clearing and into the jungle, all atitter to tell his friends what wonders he had seen.

On the third day Wendell, Beale and Jimson sallied forth from the flyer. They wore the lead-mesh under-suits Wendell had insisted be brought along, shoes with thin lead soles, helmets of lead-mesh that had visors over the face that could be raised at will. Their gloves were heavy with lead. Lead alone would protect them from the radium emanations that had killed the men of the *Corsair*. Besides this they wore dark glasses to protect the eyes against the excessive sunlight of Vulcan. Only the small gravitation on Vulcan's surface, but one-sixth that on earth, permitted the men of earth to burden themselves with hundreds of pounds of lead. The men knew, were they to obtain sufficient *cosmicite*, that a thin covering of it would protect them from all dangerous rays, and these ungainly space suits would no longer be necessary.

Through the trees they could see fox-men scurrying away in sudden fright. Wendell led his party to the edge of the clearing, then deliberately stood there gesturing broadly to his companions as if explaining things to them. The natives did not run far, soon the three were aware of many eyes upon them. A half hour was wasted away as the Tellurians permitted the Vulcanites to grow accustomed to their strange appearance. Now Wendell drew forth his light service air-pressure gun and with a great show of pantomime pointed out to his companions a giant bird that hovered over the clearing. He aimed his gun. There was no explosion, but the bird fell almost at the men's feet.

It was Jimson's cue. He acted as if Wendell's feat were too simple for words, and pointing out a cluster of high-hanging fruit he drew his needle-beam pistol. Scathing fire leaped from the gun, played on the fruit and charred it so that it hung there a mass of cinders. Whereupon Beale with wider gestures drew forth the more deadly weapon, the cathode atom-destroyer. A thousand feet away stood an unusually tall tree, rising almost two hundred feet into the air. Upon it Beale turned his ray. The white light was blinding and the tree was no more!

Without a word the three turned and hurried back to the flyer. A great burst of sound rose from the jungle, the awed voices of the fox-men. Surely, come what may, they would carry in their hearts a deep reverence for the men of the *Adventure*.

The following day the three again went into the clearing. The men crowded about every window port to watch their reception by the natives. They could see a number of the little fellows lurking among the trees. The appearance of the three in the open seemed to be a signal long awaited, the undergrowth was suddenly thick with the shiny-skinned men. There was some hesitation among these, but after a few minutes of this indecision the three realized they were merely awaiting the arrival of several personages who could be seen hurrying down the path that led from their village.

These were seven creatures from whose path the others crowded away. They were taller than the average fox-man, broader of shoulder, heavier of limb, with faces that were shrewd, intelligent. Like their fellows they were unclothed and they, too, were ornamented with bits of *cosmicite*—but their shields were larger and heavier.

What made them stand out from the others was the color of their skin. It has been noted that the natural color of the Vulcanites was a brownish-grey, whereas in the case of the seven chiefs (for such they proved to be) no two were alike. The foremost was white, a pure virgin white made possible by some bleaching agent. The second was red, a bright naked red. He was followed by a third whose skin was green, a fourth blue, and so on through the colors of the spectrum, bright garish colors like those that filled the jungle.

THE white-coated native was evidently the leader. He came striding forward filled with the importance of this occasion, cynosure of all eyes. As he drew near the Tellurians saw that in addition to his *cosmicite* trinkets he wore a head-dress of feathers that stuck up from

his pate several feet, permanent fixtures glued tightly in place. Also he wore wristlets of the precious white metal besides his knee and elbow shields, and when he turned about they saw a long hairless tail of some animal securely fastened to his person.

Later when the Tellurians learned enough of the rudimentary language of Vulcan, a common tongue used by all tribes, they discovered this imposing creature was Rafel, elected chieftain of his tribe that numbered no less than three thousand males. (Females and young were not counted in the census.) There were six hereditary chiefs (*tuco**) who once every six years** were selected from among their families, one chosen to be their official representative. Once elected he could not be deposed during his reign, the very chiefs who put him at their head were as much his subjects as the lowliest *muli*.*** His power was of life and death.

Rafel not only directed the civil welfare of his people, but was also their spiritual leader. And since there were no less than a thousand gods and devils in their Pantheon, his job was not one to be sneered at. Yet, with it all, he turned out to be a kindly if not kingly fellow. His dignity sat not too heavily upon his shoulders and he proved open to reason. Like all savages he feared most to lose face, to be made a fool of! He believed without question that the *Adventure* had come from the sun. Had he not seen the "sky-boat" come out of the sun itself? He considered his tribe unduly honored by the visit.

He came leading the procession of emblazoned *tucos* forward, halting at the edge of the clearing. Wendell, Beale and Jimson had taken but a half dozen steps from the airlock, permitting the first move to their "hosts." And for all his apparent efficiency, Rafel was for the moment at a loss as to what he should do on this unprecedented occasion. A chieftain of three thousand adult males, however, must have recourse to doing the right thing at the right moment. After his single minute of indecision he was suddenly a typical "greeter."

Standing just within the clearing with the circlet of trees at his back, the chieftain threw wide his arms as if to embrace the universe, and began to recite what was undoubtedly a prepared welcome speech. It was long, twenty minutes of it. Jimson nudged his chief. "The chairman of the Rotary Club back home ought to be in on this. All that's missing is the key to the city."

"Hush, I think it's coming now," whispered Beale.

For Rafel had raised one arm high above his head in signal to those behind him. Now the six elaborately-colored *tucos* came forward bearing a burden between them. It lay suspended upon a square of woven grasses, a tiny statuette. No more than six inches tall it was of exceedingly crude workmanship, a figure of *cosmicite*. It took Beale and Jimson several moments to discover that it depicted a rather ugly little fox-man, shiny-skin, squatting on his heels and holding a round globe (also of *cosmicite*) between its knees which it contemplated.

"It's a god, possibly the god of the sun," explained Wendell, who had seen a like figurine on his first landing upon Vulcan. They could see that the six carriers held the figure in deep veneration. They halted before Wendell, waiting for him to do something about it. Jimson nudged him. "Take it!"

Wendell did not listen to him, but merely raised a hand as if in blessing, and by the expression on Rafel's face they saw he had done the right thing. The seven were grinning broadly. Then, at Rafel's signal, the six *tucos* retreated back into the trees carrying their god with them.

"That's one up for our side," grinned Jimson.

Rafel waited until his companions were out of sight, then gave a second signal to his people. This time it was not the gaily-colored chiefs who answered his summons, but a dozen slate-brown *mulis*, each carrying a grass-matting basket on his head. At Rafel's signal they lowered them to the ground. They contained a variety of fruit, a sort of meal-cake, the raw flesh of strange animals, water and nuggets of *cosmicite*.

WENDELL made no motion to accept the fruit, but he did stride over to the single basket of *cosmicite* and select from the top a single nugget. He motioned for the captain and Jimson to do likewise. When that was done he waved an arm over the baskets. But this time Rafel did not understand. A frown appeared between his beady eyes.

In a rasping voice he called out three words. There seemed to be some delay, but after five minutes or so a dozen more slaves came running forward with twelve more baskets on their heads. These contained the same variety of food, the twelfth, *cosmicite*. Rafel watched Wendell anxiously, but he only shook his head, and sought again to wave the baskets away. Again Rafel called out three words, and though the delay was longer than before, twelve more baskets appeared!

Wendell realized if something was not done to halt the procession the *Adventure* would be surrounded by baskets. It took him ten full minutes to make Rafel understand that his men and he had no use for the food and water, but that the *cosmicite* was acceptable.

The chieftain understood at last. He called a word to his bearers to carry off their burdens again, leaving the three baskets of metal. Jimson turned to the ship, motioned for men to come through the lock and carry away the baskets. Rafel waited quietly with arms crossed while this was done. With signs he made the men understand they were now to follow him.

He led the way down a well-worn path through the trees. The natives stood back from the path watching them pass. They had glimpses of both women and children with dumb animal faces and round pot-bellied figures.

A hundred yards from the clearing the village began, if such could be termed a village. There were no houses, just burrows in the ground entered by round holes covered by a trapdoor of matted grass, vines and jungle debris. When dropped in place no one could guess at the teeming life that dwelt below. The jungle life went on above ground undisturbed, food ready for the hand of man.

After passing a dozen openings Rafel led his guests through a trap only more imposing than its fellows be-

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*It is difficult to give Earthly equivalent to Vulcanite terms. There were scarcely more than a hundred words in the vocabulary, and many proved obscure to the Tellurians. The term tuco was applied by the fox-men to anyone or thing of high rank. Gods, men and devils were all tuco!

**The year of Vulcan is only fifty-four Earth days long, but since Vulcan rotates on its axis once every 39 hours its sidereal year is sixty-eight and a fraction Vulcan days long

***muli , captive, applies to both man and animal. The main motive of war between tribes is for the securing of slaves. Rafel's tribe numbered more than four thousand muli, male and female.

cause of its larger size. There was a crude ladder of pegs set in the straight wall ten feet down. Down the ladder they found a large room roughly fifteen feet square. It was not dark, for the walls sparkled with bits of shining pebbles that gave off a dim eerie light; while in the center of the chamber was a large piece of jagged ore, the size of a man's head, emitting light.

Jimson pointed out that this light-bearing ore was one of the several radioactive salts. He had been to the radium mines of Luna and had seen like ores. With that inexhaustible supply of the precious element so close to home it would be centuries before men of Tellus would turn to Vulcan for their needs. Beale was glad they were wearing their leaden suits. No wonder Sellers and his crew had died so horribly. A few hours' exposure to those rays and death was inevitable!

Evidently the bombardment of the radioactive rays did not affect the fox-men. Instead, were they taken from their natural environment they would most likely perish for the lack of the emanations that were part of their beings. Poison to one, life to another! Possibly, too, the food of the Tellurians would be as poison to them as the fruits of Vulcan were to the Tellurians!

Glancing about the room the three wondered about furniture, but for some mats of moss in one corner the chamber was quite bare. Rafel solved the problem by pointing to the floor. The six *tucos* who had followed them into the chamber squatted behind Rafel who took his place facing the white men. The chieftain made several queer cabalistic passes through the air and a number of women came down the passage with metal bowls of food which were placed before each man. There was some half-cooked meat, fruits and a thick gruel. Wendell motioned to show that neither he nor his companions would partake, but that did not deter Rafel and his fellows. They nodded their understanding and "fell to" noisily. For the next half hour the three had the pleasure of watching their hosts gorge themselves.

After the first few minutes of watching the fox-men enjoy their fare, Beale decided it not amiss to discuss their situation. As the three talked Rafel eyed them covertly, but his glance was only friendly interest.

Judging by the three half-filled baskets of *cosmicite* presented to them, Wendell conjectured that the metal was not too plentiful in the village. There was no sign of any in the room in which they sat, except upon the persons of the chiefs. Possibly the three baskets were all the superfluous metal in the village. By force of arms they might denude their hosts of what remained on their persons, but that was not what they wanted. They must know the source, the location of the mines themselves. There was but one way to find out. They must learn the language of the fox-men. Beale decided upon taking the easiest and quickest course.

CHAPTER III

The Gods Speak

ATTRACTING Rafel's attention, he pointed to himself and said "Beale." After a moment's hesitation Rafel pointed one thin finger at himself saying "Beel." The captain shook his head, and it took him a number of minutes to make the chieftain grasp the fact there was only one Beale. After Rafel got that into his head it was easier, and with some coaching they learned his name. It was slow progress, but Rafel at last learned that Jimson was "Jimso" as he called him, and Wendell was "Wemdal." Then elaborately he named all his six fellows.

With that lesson fairly well learned, Beale pointed to Wendell, Jimson and himself collectively, and again after a great deal of waving of arms and patience he learned that the fox-men were called "Tolis."

Henceforth it was simpler. Beale had but to point to an object to obtain its name. Jimson had found a pencil and pad and jotted down each new word with its equivalent much to the fox-men's wonder. The room in which they sat was a "kel," the floor, and this included the ground as well, was "get," good "gimgim," *cosmicite*, "*dasie*" and so on.

When his teachers began to yawn unselfconsciously, Beale realized how late it must be. Rafel appeared disappointed they would not stay the night. Wendell, Jimson and he were feeling their own hunger now and were anxious to get out of their heavy suits. Rafel ushered them forth into the growing dusk with great aplomb.

Even before all the light of the sun was gone, the jungle was changing in aspect—the ground, the trees, the very fruit and even the bodies of the men of Vulcan were beginning to glow of their own light. It was as weirdly beautiful as it was strange. Beale and Jimson recalled they had seen the same thing on the night-side of the planet with their arrival. Wendell pointed out that everything here was luminous because of the high percentage of radium that was absorbed by every organic thing.

By the time they reached the *Adventure*, the full wonder of the eerie night was upon them. Every tree trunk, every tendril of the vines, every separate spiney leaf, every berry was plainly outlined as though in silver. Night insects just beginning to stir, carried their own lanterns; the birds were streaks of brilliance against the black moonless sky. Altogether Vulcan was an unusual world.

It was more than a week before their real mission could be spoken of to Rafel. During that time Wendell, Beale and Jimson spent most of their time in the company of the chieftain, learning his tongue and the customs of these savage little people. Twice Rafel had been taken into the *Adventure*. He seemed quite willing to devote all his time to the strangers; awed by their presence, he took childish delight in their company. He did not question. If they wished to enlighten him about themselves of their own will that was sufficient. The *Adventure* was something outside his realm, incogitable.

The men of the crew were not so patient. They could see no good reason for this dalliance. They recommended stripping the natives of their ornaments and forcing them under pain of death to tell where more was to be had. They were free to wander about the "settlement" as they pleased, but in most cases one visit to the burrows of the Tolis was enough. Only a few of their number bothered to learn the tongue of the shiny fox-men. Then they had their first "accident."

It was nearing sunset of the short Vulcanite day, when Jimson standing at one of the ports saw Warren and Yarbow running through the trees as if in mortal terror of their lives. Wendell was at his side.

"Good Lord!" cried Jimson at sight of the racing men.

"Have they gone crazy?" His eyes went beyond the men, trying to discover if they were being chased by natives, but in the deceptive ghost light of the verdure it was difficult to see.

"They run from themselves . . ." said Wendell quietly. "Get them into the ship before any natives see them as they are . . ."

"What do you mean? What has happened?"

"Go, open the lock, I tell you!"

Jimson cast one more look out the window. The men had reached the clearing, but Warren had stumbled over a vine and sprawled on the ground. Instead of picking himself up he was rolling about wildly, clutching at himself, trying to reach a dozen places at once, but Yarbow stumbled forward unaware of his companion's antics, his face a horrible mask of twisted pain.

Jimson needed no further urging to get down to the lock. He passed a man in a corridor and ordered him to follow. Yarbow fell through the doorway as it was pulled open from within, but Jimson did not pause; he ran out to where Warren still squirmed in the throes of some mysterious attack. The poor fellow was almost gone when he reached him; and Jimson had to carry him, a dead weight, into the ship.

Beale had been summoned and was trying to ease Yarbow's pain, but the pair were beyond help. They moaned and screamed alternately, seemed unable to breathe; their eyes grew glazed rapidly. In half an hour Yarbow was dead, Warren followed quickly.

Wendell had a ready explanation. "Two days ago I saw them eat some fruit . . . I warned them, but they laughed at me. I've been watching them, but they must have slipped out this afternoon behind my back. Lucky they had sense to get back here without the natives seeing them die. You'll have to bury them in the dark . . ." He turned and went away without another word.

Someone muttered behind his back, another began to curse this unnatural world. Beale demanded silence. Tomorrow, he promised, he would confer with Rafel about the mines.

IN a world abounding with the heavier metals, the Tolis were a race possessed of little science. They used stone knives and hatchets, stone-headed spears and arrows. They knew fire, but nothing of smelting ores. *Cosmicite* was found in nuggets, and these they fashioned by laborious hammering. They had nothing that might be considered luxuries. Because of the nature of the planet they had no need for clothing. Everything beyond their limited comprehension was magic, every tree and bush had its god. The sun that lighted their day was the Great Leader. The spirit of the *cosmicite*, or *dasie* as it was known to them, was their second-best god, considered superior in many ways.

An arrow or spear-head tipped with a pellet of *dasie* went true to its mark regardless of the aim. The archer who failed to kill his enemy was impure of heart, therefore undeserving of the fidelity of the god! The same was true of food eaten from plates of *dasie*. If the food poisoned the diner, his unclean touch had vitiated the power of the god's strength.

True to his word, Captain Beale addressed Rafel the next morning. He managed to convey to the chieftain in the mongrel dialect the Earthmen were using to make themselves understood, the fact that there was a shortage of *dasie* in the land of the sun. He explained that he and his men might easily have taken as much *dasie* as they desired without the men of Tolis being the wiser, but the ways of the Gods were not thus. The *dasie* belonged to the Tolis by right of virtue, and therefore the Gods instead of taking what they wished by force were asking as a favor, an adequate supply of the precious "stone." The three baskets Rafel had so open-heartedly given were but a drop to their real need.

As he spoke Beale was watching Rafel narrowly. He saw the frown that came into the chieftain's face and knew he was treading delicate ground. The coming of the Gods to the fox-men was a great event in their lives, an unprecedented break in the monotony of the jungle, and thus far had cost merely three baskets of *dasie*. This demand for more *dasie* was different, and Rafel wisely knew it was a demand. Rafel had been witness to the target practice of the Gods on the third day of their coming, and he was intelligent enough to know that what had been done to birds and trees could be accomplished on man.

Beale said a little more, but knew he had already won his point. Magnanimously he gave Rafel until the following morning for his answer, knowing well enough what the answer would be!

And sure enough the first hint of the rising sun brought Rafel into the clearing. He began the ceremony with flowery protestation of undying goodwill, exhorting the captain to carry to the Great Leader word of his worthiness. Then he was waving to his fellows who came bearing between them on its cloth the little statue they had seen the first day.

When the figurine was borne away Rafel gave his second signal. Only ten days before the coming of the "sunboat" Rafel had been to the mines. And here came twenty men bearing on their heads well-filled baskets of white metal. The eyes of the crew of the *Adventure* glittered at the sight. Nuggets ranged from the size of peas to double the size of a man's fist. This meant vast fortune for them all, even after Wendell had taken his lion's share!

Forgotten were the mines, the possibility of even greater wealth, but not so Wendell. He could not forget.

Afraid the sight of the metal had robbed Beale of his reason, Wendell took the fore. He scarcely glanced at the baskets. Then he cried. "No, no, take it away!"

Rafel's surprise was no greater than that of Beale and Jimson. The men staring out the windows of the *Adventure* did not grasp what Wendell was doing. Beale and Jimson wanted to protest, but Wendell flung them both an eloquent glance from his heavy brows. Rafel was protesting, unable to comprehend. Not enough? He paused but a moment, waved again to his men and they went off—to return with twenty more baskets. Rafel looked to Wendell for approbation. The eyes of the others were starting from their heads, unbelieving.

And all Wendell did was to shake his head. "Take it away, all of it," he told Rafel.

Rafel struggled between two emotions, one of joy that the *dasie* was not to be accepted after all, the other . . . fear for the same reason. Beale and Jimson murmured protest behind Wendell, but he did not appear to hear them.

Instead he stood by stoically waiting until every basket

had been carted away. In the *Adventure* men cursed, cried against Wendell, but unknown to them . . . he had securely locked the heavy porte of the ship from the outside!

Now he gave his full attention to Rafel, to explain through the poor medium of the savage tongue what the trouble was . . . That the Great Leader would consider it a great sin if his messengers deprived the fox-men of their precious stone.

In answer Rafel grinned. Surely, he thought, the Great Leader would know that there was more *dasie* to be had, that it was but a five-sun walk to the mines. He and his men could replenish their stores quickly enough. The Tolis gave with willing heart. Let the men bring back their burdens!

Still Wendell shook his head. He sought again to make Rafel understand. The *dasie* of the Tolis was of no use to the Gods. It was, as all other "stone," useless. The Gods could not dare accept that which had come to them from other hands. Just as the *dasie* of the Tolis was contaminated if touched by alien hands, so was the *dasie* defiled that had been handled by any but the Gods themselves!

AND this time Rafel comprehended it. He was abject in his misery. In his generosity he had not considered this contingency. He was only glad the Gods had not struck him down in their anger. He must go now to discover when the spirit of the *dasie* would concede it propitious for a new expedition to start for the mines, when he and his fellows might lead the way.

Wendell had to be agreeable to that, and Rafel went away with a promise to be back on the morrow. Now he had to placate the men of the *Adventure* for his refusal of the forty baskets of *dasie*, pointing out that if he had his way there would be forty times forty baskets to be had, more than the *Adventure* could hold if they but listened to him.

The next day Rafel came to advise them they must wait two days before they could start for the mines; for so his spiritual aides had decreed.

The men grumbled, but otherwise were quiet. They strolled about the village watching the preparations taking place for the march, particularly those of Rafel who had something in a pot that boiled without fire. And the chieftain was eating *cosmicite*. An open dish in the center of his burrow held a pebbly dust of it, and whenever he thought of it he would take out a small crumb and placidly chew and swallow it.

At last Rafel was ready to announce the start. To the men of the *Adventure* it did not look like much of an expedition. There were ten natives in the party—Rafel, the six *tucos* and three youngsters, sons of two of the *tucos*. In small sacks of woven grass each man carried a supply of sun-dried meat, and except for two of the boys carrying heavy stone knives to cut their path through the jungle, they were otherwise unarmed. Rafel carried several implements of his trade, one *tuco* carried a bowl of what turned out to be holy water. Their drinking water and supplementary diet of fruit would be found on the way.

Beale had expected to go with his men in the *Adventure* to take the natives with them to point out the way, but Rafel piously vetoed such a suggestion. First, he declared, the trek to the mines must be made in a spirit of humility, the "sun-boat" made too much racket, and the spirits demanded silence; second there was no clearing large enough to contain the *Adventure* within many walks of the fields! No, they must go afoot as his forebears had gone afoot for a hundred generations.

This put a different complexion on things. It meant five days of marching in heavy leaden suits under the burning sun, the matter of carrying enough food tablets and water to last the entire trip, beside their mining implements. Beale tried to argue. The *Adventure* could make its own clearing a day's march from the mine, but in this Rafel proved adamantine.

There was a short conference in the *Adventure*. There would be no need for all to go. At most six men could do the work. They would locate the mine, take its position by sun and stars as well as landmarks, and bring away only samples, a small supply that each man could carry comfortably. Later when the natives thought they had returned to the sun, they would drop upon the mine, blast a clearing for the ship and load it with all it could carry.

It was decided Beale would stay with his ship. Jimson would take charge of the expedition. Five were chosen to accompany him: Arth, Morgan, Talbot, Ware and Petrie, the youngest and heartiest of the crew.

The trip would consume ten days of travel, and with a day stop-over at the mine it would mean eleven days in all. Against accident they would carry food in the shape of tablets and water in airtight canteens, each man his own share, a twelve-day supply. In addition to other things, Jimson carried a tiny wireless to keep in touch with Beale once they reached the mine.

It was noon before they could start and Rafel was impatient at the delay. The men's packs were hastily packed, but at the first stop that night they would straighten them out. Each man carried his revolver against unforseen dangers. It was with much misgivings that Beale saw them go weighted down like deep-sea divers. Did he have a premonition of disaster? He managed to shake off his forebodings to wave cheerily as they disappeared into the trees.

Their direction lay opposite to the village, but for half an hour the men could still glimpse the towering outline of the *Adventure* through the trees. Then they dropped into a low valley, and it was gone from sight. They were now entirely dependent upon Rafel and his garishly-tinted crew.

After a few hours under the brilliant sun, Jimson wished they might make the march in the cool of the night, but the fox-men feared the night with its ghostly shapes. The eerie appearance of the luminous vegetation coupled with the fact that the *yal*, a catlike creature, roved the night, forbade them stirring from camp with the setting of the sun. Instead they must travel beneath the hot sun; and there was little shade to be had amid that forest of narrow trees with their sharp, spiny blades of leaves.

The natives, naturally, were not discommoded by the heat. Whatever it was in their blood or chemical structure that permitted them to eat freely of the radium-impregnated food, also made the terrific heat of this world as nothing to them. The three youths cutting the path through the thick jungle seemed scarcely wearied after a day of wielding the machetes with which Beale had provided them to replace their own heavy stone knives.

CHAPTER IV

The Lure of the Planet

UNDER Jimson's vigilant eye his men husbanded their water carefully, drinking only four times during the day and then sparingly. At each meal (the natives ate four times during the nine-hour day) they ate two of their food lozenges. Health sustaining though they were, however, they were none too appetizing and had to be taken with water to wash them down. All in all it was grueling work to push through the fetid jungle; but these men were accustomed to work of this sort. They had chosen this life in preference to sitting behind a stuffy desk in their own stuffy world, and this was not their first experience in an alien jungle. The new thing was the terrific furnace heat.

Heads down, eyes turned to the ground, sweating under heavy suits, averting eyes from the luscious fruit that hung invitingly everywhere in clusters from the trees and vines, the men pushed on. They turned their backs, perforce, upon the water when camp was made beside some creek, river or small lake. They talked among themselves of other things when the strange drilling of the webe bird, a creature like a woodpecker, became too nerve-wracking, and they counted themselves lucky that the swarms of insects rising at every step from the rich mold underfoot could not find them through their heavy garments. Balm in Gilead! They slept deeply, and oftimes on the march broke out into gay song. So have men of the past given chase to elusive fortune, and so will they in the future.

Rafel, following on the heels of Jimson, listened reverently to the chatter of the Tellurians. His heart swelled at the sound of their song. Since the spirits had been agreeable concerning the coming of the Gods to the abode of the *dasie*, he knew no qualms. He appreciated the fact that he was deeply honored in that the Gods had sought him out to be their guide and friend. The Tolis never lifted their voices in song, but by the time the party reached the mines the fox-men could repeat the words and hum the tune of Jimson's favorite song, "When you and I were young, Maggie!"

It was on the noon of the fourth day that it was discovered that Ware had only brought one canteen of water with him! In the excitement he had left the others prepared for him. It was a blow to all six, for it meant the rest would have to share their precious store with him. They managed to laugh it off and make ribald jokes for the benefit of the culprit. But Jimson worried. An accident like that could cripple the whole expedition. Lucky they carried an extra day's supply.

Then they came to the mine. The "mine" was situated in a cave of an underground river. The cave's entrance was cleverly hidden, but before it could be opened Rafel and his fellows had to perform rites to propitiate the god. This solemn ceremony included a soundless dance, the sprinkling of holy water around the surrounding territory, and a long silent prayer in which all nine shiny men squatted in a row, heads touching their knees for three hours. Using this time to their own advantage Jimson and his men crept over the ground, carefully taking their position by the sun, studying landmarks and the lay of the land. They explained their absence as to having to do with their own rituals.

At last, to the satisfaction of everyone, the cave was opened. They went within, stopping every few feet while Rafel said prayers and supplicated the spirit residing herein. The cave was almost as brilliant as day, due to radium salts imbedded in the walls and ceiling, and by its light they saw they were on a shelving beach of a subterranean river. Its banks for several hundred yards in both directions was strewn with nuggets of *cosmicite*, nuggets of every size, many as large as a man's head. They could see the metal shining on the shallow bottom of the river, lying in full sight, waiting for the picking!

Jimson and his men were filled with boundless joy. Because of the double curve of the river at this point they could see but a small portion, and could only guess what lay the full length of the river, and at its source. It was unbelieveable. They wanted to fill their sacks immediately, to rush back to Beale with their news. But Rafel was not through with his rites. It was dark outside when he finished, and that meant they must eat, sleep and await the new day before they might gather the metal. It was really four days before Rafel was ready to return to the village!

A different prayer had to be said over each nugget as it was plucked from its bed. Then Rafel insisted that each man take away in his knapsack as much as he could carry! He stood by while each bag was filled, making careful estimate of the weight of each man in proportion to how much he could rightfully bear on his back. With each man laden down there was more prayer, and the ceremony of putting the lid back upon the cave's mouth. This took a full day for Rafel had to be satisfied that the cave entrance was safe from detection. And another full day of prayer before they could dare take their departure!

Jimson was beside himself with chagrin long before that. And he was deeply worried. His men were already on short rations. Prepared at the most for twelve days, they had been out nine days already and the return trip still to be made! He could not believe Rafel had purposely not mentioned this enforced stay-over. On being asked how long the journey would take he had truthfully told them five days each way. The natives did not care how long the entire trip consumed. Was there not food and water in plenty all along the way?

AND there was the matter of water. Ware's shortage made their predicament worse. Water inadequate for five had to be divided among six. And to make matters worse Jimson could not communicate with Beale. The wireless was useless, there was too much interference. All he could raise was static; the radioactivity of the planet made wireless impossible. The men waved aside his fears. "We can do on four lozenges a day instead of eight, and we'll go easy with the water. Don't worry, Bill, we can't lose out now . . ." They had known times as bad as this before.

At night Jimson lost good hours of sleep tinkering with the radio. If only he could reach the *Adventure* . . . it could meet them halfway. But he was without success. Then they were ready for the return. Some of the men surreptitiously dumped a portion of the *cosmicite* from their knapsacks, but the others were more greedy. Beale had promised they could keep all they brought with them

without counting it among what was to be taken aboard later.

During the first day of the march they showed no sign of fatigue. They sang and joked as they strode along behind the machete wielders. They were not returning the way they had come. Rafel explained that to do so would mark their path too plainly for lurking enemies; other tribesmen were always on the lookout for new *dasie* mines. Hence they struck off on a slightly changed course, and on the second day arrived at an impassable river!

It meant building a bridge to cross it. The fox-men had become highly excited at the sight of the vicious river. They claimed the gods of the river was angry and had to be pacified before they could cross!

Half a day was spent in prayers before trees were felled to make the bridge. That in turn had to be tossed into the river once they were across. Here the Tellurians suffered their third misfortune. As they crossed the rude bridge Talbot fell! Losing his balance he was gone before the others could come to his aid. He toppled into the torrent and was swept from sight immediately, drawn down into the whirlpools, broken on the ragged rocks a quarter of a mile below.

Jimson placated Rafel with the explanation that Talbot had suddenly decided to return to his heavenly abode in the sun via the river. The Great Leader had recalled him. Eager to believe, Rafel accepted the story. He was awed beyond measure to have been witness to the passing of a god!

It was a pity Talbot had carried his water with him, however. Jimson had told him he was carrying too much *cosmicite* for his own good, but he had been one of the greedy. That was perhaps the reason for his fall. Morgan averred Talbot had picked up nuggets discarded by others.

Altogether they spent a day and a half beside the river.

The next day they found their canteens dry! With all their precautions the terrific heat of the unshaded sun had evaporated all that remained. The sun winked out at last, lay low on the horizon. A cool breeze stirred the tops of the jungle trees, relief of a sort. The men knew what they faced. Four days under a pitiless sun, four days without water and without food, since they could neither swallow or digest the food tablets without the aid of water . . . Hunger was not the worst . . . it was the thirst! And the natives had camped them beside a shallow gurgling brook . . .

Somehow the five fell asleep, but morning was worse. Above all they must not let Rafel and his crew know the truth. They must keep upon their feet steadily, not dare to stumble. There was no singing in the line that day, and very little talk.

With the third stop of the day, during which the fox-men ate their fruit and slaked their thirst Jimson noticed a spot of blood on Ware's lip. He wondered about that, so that he began to watch the other until to his horror he saw Ware put a wrist to his mouth, and heard the sibilant sound as the man sucked upon his flesh!

Pulling Ware to his side he saw the truth. There was fresh blood on his lips. The man was sucking his own blood. He whimpered when Jimson accused him. "I cut my wrist on a vine a way back, and it . . . well . . . it sort of quenches some of my thirst . . ." he explained.

"You fool," moaned Wendell, "you fool!" And he watched Ware for the rest of the day. It was horrible enough to think of a man doing such a thing, but Jimson feared also that the open cut would be his end, the poison from the plant that had made the cut . . . would it prove deadly?

In the next few hours he forgot Ware's predicament in his own. Water, water. God, would this never end? Like an automaton he found himself pushing one foot forward . . . then the other. The heat, the odors of stinking jungle. Swarms of insects rising in clouds in a man's face at each step. The rank odor exuded by the large fleshy leaves of the ground creepers. Webes drilling on all sides. Brightly-plumaged birds darting from their coming; paining the eyes with the slash of their color.

Food! Fruit on every side, hanging in clusters within reach; fat, juicy, peach-like gobulars, scarlet cherries, purple plums. Luscious and poisonous. Tempting a man to stop, pluck and eat; to quench the thirst in their juice and let consequences be damned!

But one remembers Wendell's white hair, Warren and Yarbow. A monstrous planet this. Wrapped in beauty, festering in poison. And the water. God!

NOW John Arth stumbles ahead. He's reeling, unable to stand the gaff. Ah, well, what's the odds . . . what if Rafel knows they aren't Gods? They'll die soon enough, they'll die on their feet of starvation . . . thirst . . . with food and water in full sight and reach of the hand. Must try to get Beale on the wireless tonight. Last chance . . . then . . . then to give up, welter in the poisonous water, sate one's self with lush fruit. Metal. Riches. All for the sake of a white metal dragging at their shoulders, eating into the flesh, burning a deep scar on their con-

It's night again, blessed silvery night filled with luminous shapes, the ghosts of all those who have died for thirst in this life. Sneering at them, jeering . . . Pointing long fingers at the water beside which the natives have camped for the night, beckoning for them to come; partake of the liquid flood; bask in it; to live again if only for one moment of exquisite joy.

Was ever there a world with more water? Since leaving the *cosmicite* fields the party had followed the course of a river, the same that had swallowed Talbot. Sometimes they lost it, sometimes they crossed it on a worm-eaten log; darting from stone to stone. But this was a lake beside which Rafel had camped, possibly an inlet of the same river, but it seemed to stretch for miles—cool, limpid, inviting . . .

"I can't stand it anymore, I can't, I can't." That was Morgan. "Water, water," he moaned, "water, please." Jimson remembered the immortal verse, "Water, water, everywhere and not a drop to drink!" So had the Ancient Mariner felt . . . only not so bad . . . he could not have been so thirsty . . . surely . . .

"Quiet, Jack, you'll arouse the natives. That Rafel's smart. He sits close to us at night to listen to us talk, repeats words to himself. Please, boy, keep quiet." How fuzzy my tongue is. My words are thick in my ears.

"I can't. I tell you, I can't stand it any more. I'm dying of thirst in sight of all that water . . ."

"We all are. We're hit hard."

"How d'we know it's all poison? Maybe it was only

in that place where the *Corsair* landed . . . maybe just one little pool . . ."

"No . . . no, it's the whole planet, the radium . . . too high in solution . . . and there were Warren and Yarbow, Jack." He sighed. "Please, please, have patience. Rafel hurries home. We'll be back to the *Adventure* in three days . . ."

"Three days . . . three days!" The last was a shriek. "We'll be dead by then . . . all. I'm dying now. Ah, I know!" his eyes were suddenly crafty . . . "I'll show 'em! I'll take my clothes off . . . I'll stand in the lake . . . it won't hurt . . . I'm burning up, burning up . . ."

"No, no, Jack, you daren't. It will kill you. Why even to remove your clothes exposes you to the emanations!"

"I won't drink . . . and only for a minute . . . just to stand in it?" He was begging like a child.

"It'll seep through your pores, it will burn your skin . . . it will kill you . . . the damned unnatural stuff!"

Jimson tried to hold the other back, to prevent him from flinging off his clothes, but Morgan was strong with desire, and Jimson was weak . . . weak.

He watched with heart in his mouth. Morgan was so young, just twenty-four. Perhaps after all it wouldn't hurt him. If only he'd be content with one dip, hurry back into his clothes. Ah, he was returning.

Morgan was revived. "It's marvelous," he averred. "I feel as if I'd eaten a full meal, my mouth is no longer parched. Come, all of you. See . . . I'm strong again!" He turned a neat cartwheel for their edification. Jimson knew. It was the radium. Of course he felt good for the time being . . . but what afterwards?

"No, it's suicide!" Jimson sought to hold the others back, harangue them, but they paid him no heed. Sitting on the bank he watched them disport themselves in the water, his own mouth so dry his tongue was like a piece of flannel. Every few minutes they tried to entice him to join them. He was tempted. "Why not?" he asked himself. There would be relief, instant relief. What did he care, for death was on the way regardless. Better death in the cool serenity of the lake than on that sun-beaten hell that was the way back to the ship.

They were far out in the lake, several hundred yards distant when with a wild call they turned in unison to swim back to shore. Unconsciously Jimson's weary eyes numbered them . . . one, two, three . . . one, two three . . . and there should have been four! He jumped to his feet, scanned the lake on all sides, but with the exception of those three bobbing figures racing toward him the lake was empty!

Arth wasn't out of the water before he began to yell. "Ware . . . went down . . ." Then they were on shore dripping water at his feet. "He went down like a stone . . . suddenly," they told him. "We dived for him, but he was dead already!" They were shivering even though the night was warm.

What was the use of saying "I told you so!" Death was riding their shoulders already. Nor did he tell them about the cut on Ware's wrist that was possibly the real reason for his early death . . . that and the polluted water. Tomorrow . . . if they lived . . . they might be tempted to ape Ware.

Then Jimson saw Rafel, a luminous figure standing beside a tree watching them. Did he guess? Did he know? Had he understood their words, their want? Did he see that one of their number was missing again? Could he know how they suffered? Well, what of it . . . they were men, starving, thirsty men.

CHAPTER V

Water!

WITHOUT a word Arth, Morgan and Petrie donned their clothing again. They dropped Ware's garments and his load of nuggets in the water. They lay on the ground close together as if seeking safety in their numbers. Jimson turned to the radio again. It was useless. He grew drowsy, his head nodded. He dreamed he too swam crystal-clear water where there was no shore, where he kept on swimming, swimming . . .

With the arrival of morning he found the three still alive, unharmed it appeared. They were ready for the march, their eyes bright, their bodies filled with new vigor; their fear of the previous night was gone. On the march they gave surreptitious help to Jimson over the roughest part of the trail as the natives cut through the heavy growth that seemed to spring anew with their passing.

The day was a repetition of the past one, the nerve-trying sounds of the jungle, the myriad insects, the awful heat of the sun beating down upon heavy helmets, the bands of their knapsacks biting into their shoulders. Later Jimson was to wonder how he had ever managed to cling to the *cosmicite* as he did. Only force of will kept him on his feet—the will to live, to enjoy the fortune upon his back.

Then came the mid-morning halt. He noticed that Arth was groggy. He had dropped to the ground with a heavy thud; lay where he had fallen, eyes closed, mouth strangely grim. Morgan and Petrie was almost as bad. Arth groaned, but the others set their teeth against the animal expression of the body.

When the signal came to start, Arth could not get up. He moaned, but was unable to speak. He lay there staring up into Jimson's face, his eyes big and glassy like the eyes of a dog Jimson had seen die once. He would recall Arth's face many days to come. Morgan and Petrie just stared at them, gritting their teeth so hard their jaws made clicking sounds. Jimson tried to bring Arth to his feet. He was a sack of meal, boneless in his grasp. He had to let him fall back to the ground.

"He drank some of it," Petrie said through stiff jaws, meaning the water of the lake.

Rafel and his men stood by watching, curious. They saw the glazed condition of Arth's eyes; they knew death. They glowered at the white men. Then Rafel spoke. "He die . . . like men!"

Jimson hesitated, then shook his head. "He die like man because he sin," he said in the jargon they used to make themselves understood by the fox-men. "God eat only food and drink water of God!" He tapped his knapsack significantly. "If God eat, drink, food meant for man he die . . . for then . . . there not be plenty for man!" He could hardly force the words from his swollen lips, but he thought his answer was masterful. Let the beggars get around that!

"The one who die in water . . . he sin, too?" asked

Rafel. Then thoughtfully. "There plenty for God and man!" and waved an eloquent hand to take in the fruit-bearing trees, the glimmer of the river a hundred yards to the right. Jimson's eyes following his hand bulged at the sight; he forgot for the moment what he was about as he too considered the plenitude of water in this wild land. He caught himself, hurried to cover his pause.

He shrugged his shoulders. "Great Leader say different. He say it taboo . . ."

Rafel, whose land suffered with too many taboos, could appreciate that, but by listening to the men during their long days of companionship he had learned a smattering of their tongue. Now he said: "You eat all food . . ." here he tapped Jimson's knapsack . . . "your water—gone. You die for water . . . and Gods no die! So it is told!"

Jimson wanted to cry out, to tell him the truth, to find sympathy in the beady eyes before him, but he dared not. Rafel was a mighty man among his kind, he would not endure being made a fool of! He would lose face with his people were it known the white men had but made a pawn of him.

"We Gods!" Jimson was belligerent now. "You know we Gods . . . or you die!" He tapped his pistol. It was the last chance, for Rafel had seen what the pistol could do. He would at least believe in that.

The fox-man nodded. "We believe," and he ordered his men to bury the now dead Arth, for Arth had died as they argued. The natives whispered among themselves at the decay already setting in upon the body. It rotted before their eyes. They had never seen the like. This if nothing else convinced them that these men were indeed different than they. The march continued.

Now it was Jimson who seemed strong in comparison to the others . . . Morgan and Petrie who were weak. They stumbled at every unevenness of the road. At last Rafel came to Jimson's side. "They die . . . too!" he muttered. Jimson nodded, not daring to speak.

"You men . . . no Gods!" The chieftain spoke with real conviction now. "Gods no die. You men like us. You come from another place.* I listen, I know. Other place!" he said accusingly.

Jimson lost his head. "Sure . . . we're men. It's this damned poisonous world . . . it's . . ." he realized what he had been saying . . . but he was speaking English . . . perhaps Rafel could not understand after all.

"Men like us . . . you . . . you . . ." but the fox-man could not find words to express his black thoughts. He knew but one thing He and his people had been betrayed. He called to his fellows, halting their march, and broke into a flood of liquid tones that Jimson could not follow. Their faces were somber.

SUDDENLY Morgan pitched to the ground, felled like a tree. Petrie was easing himself after him, unable to sustain his own weight longer. He had dropped his pack somewhere behind. Rafel gave them no heed. He was screaming at Jimson. "You make lie. You spoil magic . . . the *dasie* cries for revenge . . ." He was working himself into a black rage. Jimson found it in himself to sneer.

"Well?" he wanted to know. "What does it matter?"

*It is to be questioned if Rafel truly understood that they had come from another world. The Tolls' word for world is place, as is any other part of their planet which is foreign to them.

"Men from other place. You make sky-boat swim ocean between places. You want *dasie* . . . you act like Gods to fool us. But you no return. You no tell others. My people . . . they make you die!" A bow and arrow appeared in his hands as if by miracle from its holder at his back. His companions were armed likewise, an evil circle of *cosmicite*-tipped arrowheads pointed at Jimson's heart.

He dared not draw forth his revolver and he was afraid. He who had faced death for three days was afraid of it in this form. "Wait," he shrieked. "Rafel wait! Talbot . . . him God; Wendell and Beale who wait in big boat of the sun . . . them Gods. We . . . others . . . we not Gods . . . we Men-Gods . . . men who serve Gods. You understand? Someone must serve Gods . . . like *muli* serve men. You understand?"

Rafel hesitated. Jimson could see in his eyes that the poor fellow wanted to believe if only he dared. He needed to save his face. He was wavering now. "You lie one time, maybe you lie again . . . the *dasie* wants revenge!"

"No, no, the *dasie* is unharmed. It's they who die . . ." he pointed to Morgan and Petrie. "The taboo . . . they broke it. I not die because I not sin. Wendell, Beale true Gods . . . they not die. I swear it, I swear it!" There was panic in Jimson's voice. His throat creaked with every word.

After a minute long pause Rafel nodded, lowered his bow. "We wait . . . Beale, Wendell must show them true Gods!"

Weak with relief Jimson wanted to cry, but he was a dried-out husk. He turned sadly to his companions. Morgan was breathing with difficulty. Petrie had placed himself flat on his back. Jimson leaned over Morgan. He picked up one arm to feel his pulse. It bent weirdly in the middle of the forearm. Petrie saw it. "It's in the bones . . . its eats . . . away . . . the lime . . ." he explained. Morgan's eyes had glazed; they stared at the brilliant swollen sun directly without seeing Petrie was going too. A few minutes and he could not raise his chest to breathe or moan.

Rafel's men refused to help Jimson bury his dead, and he was too weak to scratch out even the shallowest grave. He wanted to say a prayer, but his cracked lips refused utterance. He had to leave the pair where they had fallen, boneless things, decaying already. Soon they'd be devilish masses of putrefaction shunned by the meanest scavenger of the jungle.

The natives paid him no heed as he stumbled on after them. The machetes flashed in the sun. Rafel no longer waited for him to pass on ahead.

On; on, push on! Swing the damn machetes. On, on, one step, now two, a third and another. What if these weighted feet refused to obey? The *cosmicite* on his back . . . it was dragging him down . . . Lord . . . he didn't have the strength to pull his arms out of the straps. If there were only some water, a drop, a thimbleful. What is that? A slow-moving river. Water! *Water!* WATER!

How thick the grass has grown, vines pull at arms and legs . . . why . . . the machete wielders have gone . . . gone. here . . . oh God . . . was he? Ah, yes . . . the water . . . water . . . there ahead!

Funny noise! Crack . . . crack! Webes didn't make

a sound like that. Yet familiar . . . strangely familiar. Jimson! Jimson! Why all the jungle was calling his name. Jimson! What a joke. Why there they are. Talbot, Ware, Arth, Morgan, Petrie . . . coming to meet him. Good fellows . . . they wouldn't leave a pal behind. Not them. And they'd go swimming together . . . all of them this time . . .

Funny . . . lying here . . . hurry . . . hurry can't you see the water ahead . . . not ten feet away. Why only animals crawl . . . what's wrong? What's the weight on one's back . . . something lying heavily on one's back, holding one down . . . oh yes . . . one's old man of the mountain . . . the *cosmicite* . . . the fortune with which to buy a space ship of one's own. The sun . . . it's gone . . . the world is black . . . this then . . . is death . . . death. Silly to have feared it. It's cool . . . clean.

Water, water! Oceans of it running over his mouth. Feeble fingers reach to catch escaping drops . . . the flood withdrawn. More, more, I say! More!

"Easy, easy, Bill!" Funny Beale's voice here. "Take it easy like a good fellow. There, a little more now. You're all right, old man!" Beale . . . good ole Beale . . . don't know he's too late . . . don't know that I'm dead!

"I'm dead . . . a dead man . . . only a man . . not a God!" Jimson could hear that strange voice at his ear. It took several moments to recognize those hollow tones for his own.

"You're not dead, though you were darned near it. The others, Bill, what happened?"

"They weren't Gods . . . they sinned . . . they bathed in the lake . . . their bones . . . dissolved like . . . water."

"My God! Wendell warned you!"

"I told 'em you were God . . . not us . . ."

"Yes, I know. The fellow Rafel took a pot-shot at me. Lucky I wore my lead mess shirt. The soft tip of the *cosmicite* blunted . . . and the arrow fell to the ground. They are certain now that I am a God. But what a price to pay. Five men gone in one blow . . . and all of the *Corsair's* crew but Wendell . . . you almost . . ."

"I've got the stuff, Captain. Look . . . sixty pounds of it, and pure . . . pure . . ."

"Yes, Bill, you're a wealthy man now. You can buy an estate and marry a wife and play at life, but you won't, you poor fool, you won't. You'll go on and on . . . looking for new fortunes, peeping into all the strange corners of the universe . . . and if you're lucky you'll see many new things and make many fortunes, but one of these days in some strange jungle like this it'll get you . . . and you'll die like the rest of us . . . with . . . with boots on . . . Wealth, fortune, Lady Luck! It'll get you.

"And the others, men who will come after us to Vulcan. These poor untutored savages will fight to preserve their rights. Thousands will die before they learn their lesson; the rest will become slaves to dig out the ore. Our own men . . . poor devils . . . they'll sweat and toil in this noisome jungle, under the blistering sun, living on food lozenges . . . on water so filtered that it is dead. Craving baths in the cool inviting lakes, tempted by the growing fruits on the vines. Some will succumb . . .and their bones . . . will rot!

"Riches! Man's damnable desire to conquer, to nose in where he don't belong. In the future men will point to you and me. They will say . . . 'those pioneers . . . they were men!' Bah! Sheep! That's what we are . . . pigs for the slaughter . . . pigs for slaughter!" A wild laugh broke upon the jungle.

THE END

RADIUM == Boon or Menace?

By HUGO GERNSBACK

NO elemental substance has so intrigued the minds of men since its discovery, at least since the Iron Age began, as radium, the mystery metal. It has been hailed as the key to all the unknown things in science, as the liberator of power undreamed of, as the panacea which would cure all diseases and make men immortal. Now we are told that it is a source of terrible, creeping, treacherous death, and that laws must be passed against its use.

Is radium to be a blessing or a curse to the human race? This will be only one of the many important scientific problems discussed and explained in the big June issue of

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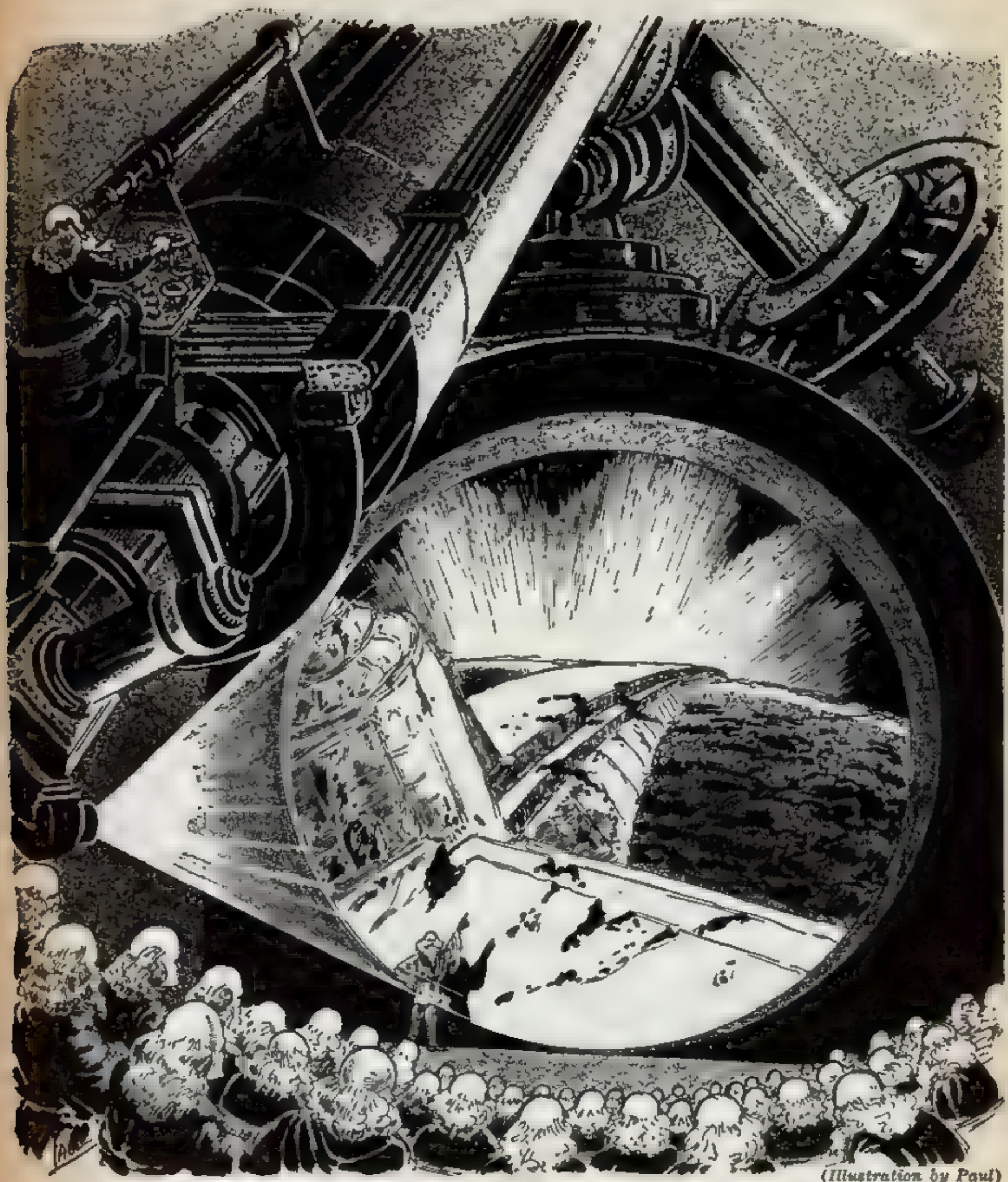
THE MESSAGE FROM MARS

By **Ralph Stranger**



(Illustration by Paul)

"Mercury presents a pathetic sight. Its race is dead, and what they call a sun-cracked surface is nothing but the ruins of gigantic structures similar to those on Mars."

THE MESSAGE FROM MARS

I HAVE found a job at last! I, William Edward Cooper, M.C., B.Sc., A.M.I.E.E., late Major R.E. Signals have found my first permanent post!

I suppose you cannot see anything strange in this, but then you don't know me yet . . . Oh! I don't mean that I have never been employed. I held some responsible positions, but I could never stick to a job for long.

My wife, the little flatterer, is under the impression that I am too brilliant a man for routine work.

I know that this is all rot . . . The whole truth of the matter is that I am very seldom satisfied with what I am doing. If I am designing electrical machinery I must dabble in radio. Then I strike something that looks promising . . . In goes my resignation and I am carrying on on my own till my patents are through.

Once the excitement is over I am looking again for something to do.

It is rather fortunate for my wife and my son that we are not dependent on my earnings. I have a pretty large private fortune left to me by my father, and I suppose this will account to some extent for my restlessness.

Still it is all over now. I am permanently fixed as a liaison officer between Earth and Mars, and as to my job being exciting, well, we shall see.

I think I had better begin from the beginning.

A few months ago, one Thursday evening, about 10 pip emma, I left the hospitable portals of my club, and having decided that a stroll would do me good, I crossed the road to the railings of the Green Park, and set out on foot towards my house in Kensington.

Suddenly I heard a shout and a scream, and then some more shouting. I glanced over my shoulder and stood stock still. A dark bundle was lying in the middle of the road and a number of figures were moving towards it at a trot. The rear lights of a motor car were rapidly disappearing in the distance.

I joined the group. The dark bundle proved to be an old man, grey-headed and rather small in stature. It appeared that the car had knocked him down and gone right over him. The injured man was breathing rather heavily, and I saw at once that there was no time to lose if he were to live. No one seemed inclined to do anything so I hailed a passing taxi and within a few minutes the injured man was in the capable hands of the doctors and nurses at St. George's Hospital, Hyde Park Corner.

While I was giving particulars of the accident to the nurse on duty, a man came running down the stairs and told me that I was wanted by the doctor in charge.

I followed, and after mounting some stairs and passing down a few long corridors, found myself in a large room with rows of beds. The doctor introduced himself, and told me that the patient would not quiet down till he saw me. "His condition is very serious," said the doctor, "he might live for two or three days at most, and I think he has something on his mind that is worrying him . . . See if you can help him in any way."

The old man and myself were left alone.

After a while he gathered enough strength to speak, and motioned me to come closer.

"Listen," said he, "you rendered me a service, and it leads me to believe that you will do something else for me. Are you afraid of danger?" Is a duck afraid of swimming? I became quite interested. The old gentleman apparently read my thoughts, and went on talking: "I am Professor Ostrohoomov" . . . I started . . . Professor Ostrohoomov, the man who established communication with Mars! "Ah, I see by your face that you have heard of me . . . Good, now listen . . . this was no accident . . . they ran me over to kill . . . they are after my secret . . . the fools! Borara will avenge me, he will know . . . But my wife is in danger . . . Go to 106, The Crescent, Hampstead, and take my wife out of the way of these ruffians . . . See that she is safe . . . Give me your word of honor that you will carry out my request."

"I will, sir, you can rely on me implicitly," was my answer.

"Thanks, thanks, may God bless you for being so good to a dying man. Hurry now, there is no time to lose."

Mrs. Ostrohoomov proved to be a timid old lady dressed in an old-fashioned Russian dress. As soon as I told her

RALPH STRANGER

MR. STRANGER is an English authority on radio, and from his wide knowledge of the possibilities of interplanetary communication, he gives us this exciting tale of two worlds. Our readers have been crying aloud for stories in which creatures from other worlds do not figure as invading, bloodthirsty demons. Here, then, is a story they have been waiting for. Our Martians are presented in a new light, and they come upon the scene to interfere in an earth catastrophe of the first magnitude.

Mr. Stranger has kept his science as well as history plausible; and although you may not agree with him as to the method of interplanetary communication used, nor with the character of the catastrophe, we must remember that like most Americans Mr. Stranger is imbued with patriotism, and we see that Englishmen can occasionally save the earth too!

that I came from her husband, she promptly asked me if I would like some tea, and was already bustling out of the room when I told her that my taxi was waiting and would she dress for the street and come with me, as it was her husband's wish.

"But where does Michael wish me to go, why does he not return home at this late hour, he will catch his death of cold being out so late." I hated my job, but I had to do it, and I gently broke the news, telling her that it was only a slight injury.

The poor old soul completely broke down. After a while, however, she pulled herself together and insisted that we should go straight to the hospital. In a few minutes she was ready and, having locked up the house, she followed me into the street. The taxi driver was eager to start and as soon as we took our places the taxi slipped forward and went at a good speed along the deserted streets.

On our way to Kensington we called at the hospital, and learned that the professor was quite comfortable but that it was out of the question to see him, he should not be disturbed. It was one o'clock in the morning by the time we arrived at Kensington and I found that my wife was sitting up for me. I explained to her briefly my evening's adventures, and she, grasping the situation, promptly took charge of the unfortunate professor's wife.

NEXT morning Mrs. Ostrohoomov, my wife and I called at the hospital and we left the old lady there with her husband, promising to call for her in two hours' time. The nurse told us that the professor felt much better, but there was very little hope of his recovery. Three days after the accident the professor was dead.

The inquest, at which I had to give evidence, resulted in the verdict: "Death due to internal hemorrhage, caused by collision with a motor car. The collision was purposely carried out by some person or persons unknown, who are guilty of conspiracy and premeditated, cold-blooded murder." The Coroner commended my conduct and dismissed the jury.

While in the hospital, the professor had made a will in my favor, the only condition being that I should be responsible for the maintenance of his wife while she lived.

Thus Mrs. Ostrohoomov became a member of our household and a devoted worshipper of my three year old son, Peter.

Very shortly the professor's lawyers got in touch with me and asked me if I would accompany them to Hampstead to take over the property and effects of the late professor.

We went to Hampstead the next day. The house looked quiet and forbidding. We opened the front door and walked in. The sitting room was just as we left it, but in the professor's study we had a shock for there we found a man sitting in an armchair by the fire-place. Behind him stood a large reflector, mounted on a tripod, with wires running to some mysterious looking apparatus, not unlike a radio set, which on inspection proved to be completely burnt out.

The man did not take the slightest notice of our entry and continued gazing at the cold grate. "Who are you and what are you doing in here?" asked the lawyer in a sharp staccato voice. There was no reply . . . I went to the chair and touched the man on the shoulder; he sagged sideways, he was stone dead.

The Professor's words: ". . . They ran me over to kill . . . they are after my secret . . . the fools! . . . Borara will avenge me, he will know . . ." flashed through my mind and I felt a cold shiver down my back. The dead man was one of the murderers and apparently possessor of the professor's secret! All the secrets were open to him now, poor devil! . . . One of us went to ring up Scotland Yard. In half an hour the affair was in the hands of the police who, after taking a number of photographs, removed the body and left me in possession of my property, with a policeman for company. Having collected all the documents and notes of the late professor I took them away with me, leaving all the apparatus undisturbed, for I felt that the professor's Martian friend was perfectly capable of looking after this part of the show, as there was not the slightest doubt that somehow he had managed to kill the intruder.

Borara! I had read of him, this mysterious Martian scientist with whom Professor Ostrohoomov was in constant communication.

Many of the professor's notes were written in Russian and it took Mrs. Ostrohoomov the best part of a month to translate them. The translation is all complete now and I have read every bit of it. What a far-fetched story! How impossible, how absurd! . . . So I thought at the time, but I am a wiser man now . . . The professor's notes read like a fairy tale, but they were true nevertheless.

Before his death the professor wrote me a letter.

"Dear Mr. Cooper,

"I believe that Providence sent you to me in my hour of great need. You are just the man to carry on my work and to continue my researches into interplanetary communication, which I have to leave so abruptly. I have instructed my solicitors to find out all about you and to ascertain if you are to be trusted.

"I have their report in front of me. It was quick work, but then you are apparently well-known. Forgive me these inquiries, but I must be very careful as I am placing at your disposal a great power, so great that the future of this planet of ours is in the hollow of your hand. You will realize this for yourself when you have completed reading my notes which shall be handed to you.

"When you take over my apparatus and get in touch with my Martian friend Borara, do not forget, if you value your life, to start the conversation first by thinking in English the following sentence: '*Horodons grow on the shores of the Balvian sea.*' This is your password to Mars. This may seem to you childish at the moment, but later you will realize what you are up against, and how careful one has to be with a responsibility that was mine. Tell Borara what happened to me and read out this letter. He knows English.

"And now a word of advice. You will learn from my notes and from Borara a good deal about the Martian civilization. Humanity is not quite ready yet to receive such advanced knowledge; they would use it to destroy one another, and therefore you shall not disclose any information whatsoever without Borara's permission. His word is final, whatever you may consider to be your duty at the moment. But here is your consolation: *Should your country be in great danger the Martians will help you to save your country. They are in a position to help.*

"God bless you, my boy, and help you to carry lightly this great responsibility. Thousands of dangers surround you, there are desperate men who would not hesitate to kill you in cold blood, if they thought that your death would lead them towards Martian knowledge.

"Do not leave lying about any written information of importance. Keep it in your head, as I did. When you are in need, all the wonderful Martian science is yours for the asking.

"Good-bye, we shall meet sometime in a better world.

Yours sincerely,

Ostrohoomov."

When I finished reading this remarkable letter, I felt a lump in my throat. This child-like faith of a dying man in a perfect stranger was pathetic, and I fervently prayed that I should prove worthy of such a great trust. Professor Michael Nikholaevitch Ostrohoomov, late Professor Emeritus of the University of St. Petersburg (Physico-mathematical Faculty), to give him his full title, arrived in England as a refugee from the Russian revolution in 1917. His main subject was astronomy and together with other scientists he devoted a good deal of his time to studies of the planet Mars.

He firmly believed this planet to be inhabited by some intelligent beings who were trying to get into communication with Earth.

He made many efforts to communicate with Mars, but having failed time after time, he finally gave up the idea, till Mars got into communication with him.

The whole thing was a pure accident. The professor happened to be sitting one night when Mars was at its shortest distance from earth, in front of his electric reading lamp, which had a highly polished reflector. His back was turned towards the lamp so that light fell over his shoulder on the book he was reading.

He suddenly felt that his brain was gripped by a succession of surges, and he became quite alarmed, thinking that something was wrong with him. But the sensation was so persistent and of so methodical a character that he realised that the disturbance originated at some external source. He made his wife take his place and found that she experienced an identical sensation. For a scientifically-trained man this was sufficient to carry out in a systematic way a number of experiments. The professor soon realised that the disturbing center was to be found in the focus of the reflector.

NEXT morning he went to the city and purchased two large reflectors from a well-known firm of scientific instrument makers.

The professor's theory was that some electromagnetic waves were focussed by the reflector, just as light waves are reflected and focussed and in some manner or other produce an impression on the human brain.

The same evening he proved his theory. As soon as he placed his head in the focus of the reflector, the waves made themselves felt again. The only peculiar thing about them was that while he sat with his back to the reflector he could feel them, but as soon as he turned round they disappeared.

After making sure of this phenomenon, he decided that one particular cell of the brain, situated at the back of the head, was acting as a receiver of these waves.

After a while he found that the waves were getting stronger and stronger, and suddenly the room disappeared from his field of vision, and a strange picture took its place. He saw the planet Mars (he recognized its markings at once) floating in a silvery mist. This was replaced by a picture of our own planet which was also easily recognizable by its familiar continents and oceans. The third picture was that of Mars and Earth with beams of light pulsating from one planet to another.

It became perfectly clear to the professor that whoever was transmitting these pictures was trying to indicate that they came from Mars.

How they were transmitted the professor was at a loss to understand, but transmitted they were, and the only term he could apply to the method of transmission was—telepathy.

Having settled this point to his satisfaction, he reasoned that if he were the possessor of a brain cell strong enough to act as a receiver, why should there not be another cell which could act as a transmitter. In order to test this out he concentrated on the thought of his own house, but nothing unusual happened.

A sudden idea then struck him and turning his head round he thought of the same thing again. Nothing happened . . . He turned his back to the reflector and nearly went mad with joy . . . He saw his house floating in the silvery mist. There was not the slightest doubt that his message had reached somebody on Mars and was transmitted back to him again.

He had established communication with Mars! To make absolutely sure of the thing, he turned round to face the reflector and thought of his own appearance.

As soon as the back of his head was facing the reflector he saw himself floating in space.

He was now perfectly certain that a human being possessed two or more cells, of which one group was situated at the back of the brain and could act as a receiver, while the other group was to be found at the front, and could act as a transmitter of thoughts.

The professor then became passive and waited for further messages. And sure enough they came in rapid succession. Mars, Earth, the two planets together with beams of light pulsating between them, the professor's face and finally that of the Martian correspondent.

According to the professor it was a most striking sight. Imagine a majestic-looking old gentleman with a very long face. A high domed forehead seemed to be predominant, two large wide-spaced penetrating eyes with remarkably long eyelashes, a long prominent nose very wide at the nostrils, long moustache and beard, and long flowing locks hiding the ears. There was no vestige of color in that face, although otherwise color was present in the pictures, and it was deeply lined with furrows of a very great age. One could see at a glance that it was not a human face, but there was nothing repellent about it, it seemed so very wise and so benignant.

In the background the professor saw some mysterious-looking, complicated apparatus which he completely failed to recognize. In order to make reception and transmission less laborious, the professor placed the two reflectors at right angles in such a way that he could receive messages by means of one and transmit with help of the other just by turning his head ninety degrees.

At first, communication was carried on by means of pictures, but later Professor Ostrohoomov had the happy

inspiration of thinking of sounds. This proved to be a complete success and after a few sittings the messages started to assume quite an intelligible character. Thus the professor learned that the name of his Martian friend was Borara.

Borara proved to be quite an intelligent pupil of languages, possessing a memory of such phenomenal power that it took him only half an hour to learn the Russian alphabet and at the end of ten days he had a complete mastery of the language. The professor sent him at first letter after letter, thinking simultaneously of its contour and the sound value. The spelling proved to be very simple, as Russian is a phonetic language, and once this was mastered all the professor had to do was to open a book on any subject and just read it to himself, picturing the contents. There was some difficulty with abstract words, but a picture was found in every case, although sometimes the process proved to be rather lengthy, requiring a whole series of pictures.

Borara could repeat page after page without making a single mistake, and when the puzzled professor inquired how he could remember so much in such a short time, Borara replied that he was recording the professor's thoughts by means of photo-electric apparatus and that the first edition of the professor's treatise on nebulæ was published and distributed on Mars within three hours from the completion of its transmission from Earth.

When the professor was reading to him a book called "Wonders of Modern Science," Borara asked him why he picked up a historical treatise. When the professor explained that most of it was ultra-modern, Borara seemed to be highly amused and remarked that they had finished with steam about 5,000 years ago, and that the last electrical turbo-alternator built on Mars had been in their museum for the past four thousand years. The latest effort in radio also failed to impress the Martian gentleman, who, apparently after turning up some records, declared that the Martians knew all about it 3,600 years ago.

Borara was also vastly amused at our scepticism about life on other planets. According to the professor he said: "You must be a very conceited race to think that your particular speck of dust should have been selected for the creation of life. The laws of creation are the same throughout the universe; life is everywhere and you will learn this great truth immediately after what you call 'death.'"

CHAPTER II

An Astounding Offer

PROFESSOR OSTROHOOMOV'S notes are very copious, but unfortunately they are very rambling and in many instances seem to be unreliable. We must not forget that at first the professor was working under the influence of the great excitement produced by his discovery; later he had to spend a good deal of time in teaching Borara Russian, and then English, because when Borara learned from the professor that the British Empire was the mightiest Empire on earth and English the most widely-distributed language, he insisted on recording it immediately as well as a great number of books on all possible subjects.

Later the professor, having published the news of his discovery, seems to have disturbed a hornet's nest, for he began to be pestered by all sorts of people, most of them foreign spies. It became quite dangerous for him to leave his notes about. His house had been entered many times and searched from cellar to attic, but fortunately when the professor realized the danger of his notes falling into the hands of unscrupulous people, he adopted a very ingenious method of concealment, which completely baffled the spies. Those who have heard of "bottled wireless" will know what I mean. The professor did not write down his notes on paper but spoke them into a microphone connected electrically to a magnetizing system so that the speech was magnetically recorded on a strip of steel wire, and could be reproduced later at will with the help of special apparatus.

This was deposited from time to time at a safe deposit, while his ordinary notes, mostly concerning life on Mars, its flora and fauna, some simple scientific appliances, in short everything that could not be of menace to humanity, were kept in his desk. I, naturally, went through his magnetic records, but the matter is of such importance that I am not at liberty to disclose it publicly.

I could not forget the murder of the professor and felt that it was my duty to track the murderers, since the police had completely failed to discover the malefactors. The dead man found in the professor's house proved to be a complete mystery. His identity could not be established and the doctors were entirely at a loss as to the cause of death. The post-mortem proved nothing.

I fully realized that whoever the people were who murdered the professor they were in real earnest, and that I might just as well make up my mind to look forward to some excitement. Not that it bothered me much. I know my potentialities when I am in a tight corner, and I might prove a very ugly customer to tackle, but then, when anyone does not know exactly what he is up against, he does not feel altogether comfortable.

I decided therefore not to sell the professor's house, but use it as my laboratory and wire it up electrically in such a way that anyone entering the house without my knowledge would have a warm reception.

I also remembered an old pal of mine who at the moment to the best of my knowledge and belief was at a loose end, so much that after his last letter, in which by the way he did not ask for a loan, I had to arrange with my solicitors for the death of a fictitious French person whose life my pal presumably saved, and who had now left him £5,000 in his will. Thus Bill Sanders became a gentleman of independent means.

A telegram brought him to my side within two hours and I embarked upon my Martian adventures in the company of Bill. Next day, after Bill's arrival, I had the doubtful pleasure of entertaining at my private residence an unexpected caller. To give him his full title: Mr. Edgar Mathias Colon—financier.

He looked more like a moneylender than anything else, but still he introduced himself as a financier and company promoter. When I saw the genial Mr. Colon comfortably installed in an armchair with a fat cigar in his mouth, band and all, I sent a few uncomplimentary remarks telepathetically to my butler who had not had sense enough to send the fellow about his business. Mr. Colon no doubt had his own methods of dealing with reluctant butlers.

My visitor did not mince matters. "Look here, Mr. Cooper, I am representing one of the most powerful finan-

cial groups in the world. We have heard about your remarkable legacy and I am here to make you a very attractive offer. But before we go into details I want to know how you stand with us!"

I slightly raised my eyebrows. "Excuse me, Mr.—er—Colon, don't you take things a bit for granted?"

Mr. Colon looked at me with apparent admiration. He was so pleased that he slapped his rather plump knees with both hands and, having rolled his cigar into the opposite corner of his mouth, he deliberately and solemnly winked at me.

"Not so fast, not so fast, my dear sir. Ah, the impulsive youth! Hear what I have to say first, and then you can talk as much as you like. My colleagues and myself, we fully appreciate that the Martians must be a very advanced crowd—their knowledge, their machinery, their weapons of destruction must be colossal! There is money in it, millions and millions of money which are ours for the asking. Don't you see that you can become a multimillionaire in one day? The old professor was not a business man. Instead of offering his discovery to a powerful combine like ours he went, and, in his professorial tom-fool way, published the news for everybody to see. Giving away his great discovery for nothing!" Here Mr. Colon's voice rose to a hysterical pitch. It was quite certain that whatever weaknesses Mr. Colon had, giving things away for nothing was not one of them.

"And did he profit by it?" inquired the disgusted Mr. Colon, "he did not; he goes and gets run over by an omnibus or something and leaves his wife penniless. Why, even the papers mentioned that it was foolish of him. Now, you are a younger man, and no doubt you are an ambitious man, Mr. Cooper; do you realize what you have in your hands? Why, you have real, solid, cast iron power, you have knowledge which nobody else on this earth possesses.

"And I will tell you what I did as soon as I heard that you had become the professor's heir. I approached a few of my intimate friends in the city, and when I put the whole thing before them they promptly realized that we are in on a good thing. Ah, they know their Colon, they know that I can see through a brick wall, that I have foresight and imagination unequalled by any other man in London. And we decided to form a new company. The Martian Science Exploitation Limited. Within 24 hours we can subscribe 50 millions capital. We are ready to patent immediately everything that is worth patenting, we are ready to build factories and lay down plants for the manufacture of new machinery and new apparatus the particulars of which are already obtained or can be obtained from Mars."

I opened my mouth in order to interrupt the flow of Mr. Colon's eloquence, but he would not let me: "We will appoint you Chairman of our Company, and you shall be a life Director. We are prepared to pay to your account at any bank you may name a sum of 10 million pounds sterling as the purchase price of your existing apparatus and goodwill. And what is more we shall pay you a salary of £1,000,000 per annum on a 10-year's contract. You are a rich man, Mr. Cooper, you are the richest man in the world, it is all yours, if only you say 'yes.'"

Mr. Colon became rather excited toward the end of his long tirade and his little beady eyes searched my face intently.

"I am sorry, Mr. Colon," I said, rising from my chair, "but I am unable to accept your kind offer. My inheritance is not for sale."

For a moment I thought that Mr. Colon would have an apoplectic fit. His face reddened rather alarmingly, and he was apparently fighting for his breath.

"You refuse, you refuse ten million pounds in cash and a salary of one million per annum!" He was gurgling rather helplessly: "You refuse, you refuse."

Poor Mr. Colon, he collapsed like a sack of potatoes on one side of the armchair.

He apparently could not understand how anyone could refuse millions. Mr. Colon was completely at sea.

His state of health alarmed me considerably and I rang the bell for a glass of brandy. But Mr. Colon would have no brandy. He pulled himself together the best he could, grabbed his hat and rushed out of the room. I heard the gentle purr of his Rolls Royce, and my modest abode became quiet again.

For some time I sat in front of my fire and mused. There is not the slightest doubt that Mr. Colon must have already made a similar offer to the professor and met with a blank refusal. That is why he was so anxiously watching my face, while he unrolled before my unappreciative eyes the picture of untold wealth. I wondered if, having failed to buy the professor's discovery, the syndicate did not try other means, such as burglary for instance, or even murder . . .

If so, then Mr. Colon is a valuable clue! Has he any connection with the murder? To make sure I rang up a private detective and gave him instructions to find all about Mr. Colon, the financier, and to shadow him till I countermanded the order.

THREE months passed before I completed the construction of the receiving and transmitting apparatus according to the instructions of the Russian professor and his Martian friend.

Finally one night I was ready to try the great experiment. Bill Sanders treated the whole thing as a huge joke, and told me to be careful how I talked to the "old Martian geezer." Bill's language is always picturesque, to say the least of it, but it is especially so when Bill gets going on the subject of Mr. Colon.

Mr. Colon paid us another visit and Bill had the honor of interviewing him. I do not know the exact particulars of the interview, except that the financier became menacing. Bill apparently lost his temper. I saw the unfortunate Mr. Colon being removed in an ambulance and a policeman writing down something in his book at Bill's dictation. The magistrate bound over my excitable friend in £100 to keep the peace for 12 months. It was cheap at the price, as Mr. Colon & Co. left us alone for over four months, thus enabling me to complete my arrangements.

I placed my apparatus in position and sat down between two huge reflectors, surrounded by endless boxes and banks of glowing valves.

Keeping in mind Professor Ostrohoomov's warning, I opened the proceedings by concentrating on the sentence "Horodons grow on the shores of the Balvian Sea."

I do not think that more than three seconds elapsed, after I sent out the first thought, when my surroundings disappeared and I was gazing into the eyes of Borora,

whom I recognized at once from the professor's description. It was a most uncanny feeling. The Martian's face seemed to be within a yard of my own, and his penetrating eyes were searching my very soul while his brain seemed to grip mine.

Borara was apparently greatly surprised and I saw his hand moving slowly towards a lever. I remembered the fate of the unknown man whom we found in the professor's chair and fear seized me. I thought again of the "password" and repeated it several times.

"Who are you?" said Borora, his face still forbidding and tense. I started rapidly explaining my position and the death of the professor, and transmitted to Borora the professor's letter.

I must explain here that we did not actually talk, but just thought.

Finally Borara was convinced. He was very grieved to hear the news of Professor Ostrohoomov's death. He knew that something was wrong, since he had discovered the intruder in front of the professor's apparatus and killed him, but he did not know that the professor was no more.

I then told Borora of the professor's instructions, of how I carried them out, and also about the improved apparatus which took me three months to construct.

Borora approved everything and complimented me on my energy. For the first time he smiled. "It is a good thing that you have better apparatus. In the professor's time I was expending such an enormous amount of auxiliary energy to carry his messages across space, that my experiments were rapidly becoming a matter of national concern. Now, however, we can go ahead."

"Before you do that, sir," I said, "would you be good enough to cover afresh the ground already covered with the professor, as some of his notes are very doubtful and I would like to check them."

Borora laughed. "I am afraid the professor was rather excited about his discovery and then he spent most of his time in educating me in your own science, so that he could not make very elaborate notes. Very well, I shall begin from the beginning."

Borora then proceeded to give at length a highly technical dissertation upon matters of scientific interest, such as the constitution of matter and the part played by electrons in the provision of energy, revealing a knowledge far ahead of that of the inhabitants of the Earth. He criticized our scientific knowledge somewhat and went on to say:—"Although your scientists have a general idea of the laws of the universe, they seem to be unable to realize that these laws are universal and that life occurs on every planet at some time or other during its existence. They should have learned ere now that the Earth is not the only favored planet and should have tried long ago to get into touch with Mars and for that matter with Venus, which, as you will see later, is also inhabited.

"For the last 800 years, as you reckon time, we have tried every kind of signal possible to get into touch with you, but you ignored them all. We knew all the time that Earth was inhabited, as our telescopes are much more powerful than yours. As a matter of fact their magnifying power is such that given favorable conditions we can count the bridges on your River Thames and even gain a glimpse of your street life.

"We know the whole of your history for the last 400 years a good deal better, as far as I can see, than you do yourself."

Next morning as soon as we had finished breakfast, I read out to Bill, Borora's lecture of the previous night. Bill listened very attentively, but I could see that it was just only polite interest, as soon as he realized the nature of the lecture. "Good old Borora," was his only comment, "he does seem to know a h— of a lot about the stars; must have had a college education like yourself."

I must mention here that college education was a very sore point with Bill Sanders. His father died penniless and left Bill to look after a large family. Sanders had done his best for them and put everybody on their feet, but as a result, with time spent in the war, he found himself handicapped in the struggle for existence.

His sudden inheritance certainly eased his mind a good deal, my adventure supplied him with a new interest in life, and, just what he required, a hint of possible dangers.

One thing Bill could not stick in life was crooked dealings, as soon as he realized that Mr. Colon was not beyond hitting below the belt, Mr. Colon's activities became to him a source of unabating interest.

The discovery of the professor's murderers was to Sanders his mission in life. With time weighing heavily on his hands, and having made the acquaintance of my private detective, an acquaintance which developed into a close friendship, Bill decided that there was no better job than being a crime investigator.

That morning I was going to spend the day with my family at Kensington and I asked Sanders as to his plans for the day.

His reply was short and to the point: "I am after that swine!" When I asked for some further explanations, it appeared that the great financier, having recovered his health, and being abroad again, was seen in shady company somewhere in Whitechapel. A few remarks made by the members of the gang, whom Mortimer, the private detective and Bill had shadowed, hinted at some renewed activities around Hampstead way.

Bill, therefore, wanted to know something more about their plans and was going to visit a famous local health resort which went under the name of "The Spotted Cow." And to "The Spotted Cow" Bill went.

I heard the rest of the story next day. Sanders met at "The Spotted Cow" a certain "Shorty" who found in Bill an affinity.

Bill was naturally dressed the part, and having stood Shorty a drink, "confessed" to Shorty that he had been out of a job for over two years. Shorty immediately expressed a violent desire to help his newly-found friend and to introduce him to one called "the boss."

They went accordingly to Limehouse and in a low Chinese den interviewed this person of importance, who looked like a very unsuccessful cross between a Mongol and an Ethiopian. Bill's slang is perfect, and it was a child's play to him to convince the Boss that he, Bill, would be a very desirable acquisition to the gang.

A job was given to him on the spot. Bill and Shorty were to go to Hampstead, find a place called the "Crescent" and keep under observation a house numbered 106. Two men lived in that house, they were informed by the Boss, one by the name of Cooper, a "hengineer" and one Sanders "a hexorficer," the taller of the two and more powerfully built. They were to spot him when he went

out during the evening—Cooper usually remaining indoors—and find an appropriate moment to sand-bag him. They were to be supplied with chloroform and as soon as they had bagged Sanders, he was to be put to sleep quietly and peacefully.

IF they made a mistake about the dose of chloroform, the Boss was prepared to overlook it, and as a hint he winked evilly at Bill and Shorty. Bill remained non-committal, while Shorty gasped: "Gor-blimey, murder!" The Boss, however, gave Shorty a look full of hidden meaning and Shorty appeared to be satisfied.

As soon as they finished the "job" they were to take Sanders on the heath and hide him among the bushes and then report immediately to the Boss. He would see to the rest himself.

The contract was sealed with a pound note apiece and Bill and Shorty went on their way to Hampstead, but not before Bill had made a mental note of the surroundings. During the journey Shorty told Sanders the history of the campaign. There was a "colored" Russian and a "blank" financier in it, and one Jim, now dead from causes unknown. The financier wanted to buy something off the Russian, and the Russian would not sell.

And then the financier hired their gang to break into the house, which they did and found nothing. Jim went on his own and then the papers said he was found dead in the Russian's house. The Russian is now dead, too, the gang "did him in." The Boss did it himself, someone told him. And now that chap Sanders is going to "cop it hot."

Shorty did not like the job and he told Bill so. He did not hold with murder. Bill asked him a question or two about the financier. Shorty knew little except that his name was Colon and that he was a "ruddy moneylender or something." It was shortly afterwards that Bill gave Shorty the slip, carrying away the chloroform with him. Shorty, in fact, turned up at 106, the Crescent, soon after Bill's return and watched the house for some two hours.

In the interval Sanders changed his clothes and went out about eight o'clock. Shorty had a good look at Sanders, failed to recognize him in his new rig-out, and having estimated Bill's reach and the approximate weight behind his punch, decided that discretion was the better part of valor, and melted into the night. Sanders came in again rather disappointed.

When he had finished the recital of his story, given in his own humorous style, he relit his pipe and said dreamily: "When I get hold of Mr. Colon again I am afraid that I will forfeit that £100 surety. I cannot be on good behavior when Colon is near. And I am also looking forward to a couple of rounds with the Boss before he is hanged. He is an ugly customer but I like them ugly."

The next lecture Borara gave me was on the principles of telepathic communication.

"From your books I see that you are already speculating on the uses of an insect's antennæ. Insects do communicate with each other by means of electro-magnetic waves, *i.e.*, they are capable of disturbing the ether and feel such disturbances a long way off.

"Take for instance your ordinary moth. According to the professor a male moth taken, say, a mile away from its mate, will promptly start to move its antennæ as if searching for some subtle influence in the air. After a while it will find the right direction and fly away. You will find that the male rejoined the female moth, who had been sending 'distress signals' till the call was answered. Your fire-fly possesses in its body a source for generating electromagnetic waves of wavelengths peculiar to light. Some fishes are capable of producing a voltage of over 500 volts, and deliver a charge that will kill their enemy.

"When we discovered on Mars the electromagnetic nature of heat and light waves, we became interested in the peculiar organisms capable of self-luminosity. The fishes and the insects supplied us with the necessary clue and we soon discovered that an insect's antennæ served for distant communication. We invented some delicate apparatus which put us into close touch with the insect world. The insects generate electromagnetic waves of very short wavelengths, *i.e.*, of very high frequencies. They possess in their bodies tissues and acids which enable them to produce electrical discharges of a very rapid nature, which they control by means of certain brain-cells.

"This led to an inquiry as to the presence of similar tissues and cells in human beings. The Martians knew at the time of some striking examples of telepathy between people separated by enormous distances.

"They knew that a human being, especially when dying, was capable of sending a message to another human being, very dear to him, over thousands of miles. They also discovered that some sort of energy is being normally radiated by every person, and apparatus was designed to detect and measure such radiations.

"After a good deal of laborious research it was discovered that human beings had four controlling cells in their brain, two at the front, one on each hemisphere, serving to control the radiation of electromagnetic waves, and two at the back for the purpose of detection, *i.e.*, reception. These cells are capable of automatically adjusting themselves to any wavelength within certain narrow limits.

"Although these limits are small they are sufficient to account for many millions of individual human transmitting stations. Every human being has an individual wavelength allotted to him or to her. It happens very seldom that two individuals have the same fundamental wavelength on which they transmit. If such a thing does happen it can be corrected surgically. The power generated by a human being is larger than that of the lower animals or insects and the penetration of the wave is such that owing to the enormously large frequencies employed, we do not know even now, of any screen capable of absorbing the telepathic ray, or shall we call it the Martian ray, even partially. Just as light and heat waves are capable of being propagated through interplanetary space to reach us from the distant suns, the Martian ray can reach any point of the universe if it is properly originated and properly received. In the case of interplanetary transmission, however, human power alone is not sufficient, additional power must be used for translation and amplification purposes. Thus, for instance, although Professor Ostrohoomov was capable of receiving my messages without the use of any additional power, I had to expend a double amount of energy, as his signals were so weak that they had to be amplified many thousands of times. After the discovery of the Martian ray, generation after generation made use of it and in a few centuries the receiving and

transmitting brain-cells were so developed that we have no use now for the auditory nerve or the tongue. A person wishing to receive a message from a friend simply goes down the scale of wavelengths till the necessary call is obtained. This is done instinctively so that one has no difficulty in attracting attention. There is no confusion, as one simply does not take any notice of calls not intended for one, just as one does not take notice of other conversations when talking to a friend in a room full of people.

"At present we have on Mars no radio-communication as you understand it, no telegraph or telephones. We do not write letters unless they are to be used for documentary evidence. We still have books, as they are necessary for instructional purposes, but we communicate with each other by telepathic means even if our 'correspondent' is at the antipodes."

CHAPTER III

A Lecture on Mars

"OUR solar system consists of the sun which is a fiery globe of gaseous matter, 864,000 miles in diameter. The sun with its entire systems of planets is traveling in space at the rate of 12 miles per second towards a point near the star you call Vega. The nearest planet to the sun of any interest, is the one you have named Mercury.

"This planet presents only one side to the sun, so that while one half enjoys an eternal day with the sun swinging like an enormous pendulum in its skies, the other half is covered by eternal night. Mercury presents a pathetic sight! Its human race is dead, but their works are still open to the gaze of astronomers. What they call a sun-cracked surface is nothing but the ruins of gigantic structures very similar to those on Mars. Mercury gave us an idea for our self-protection against the march of time and thanks to this very old civilization we Martians are still alive.

"After Mercury comes another planet, Venus, whose year is equivalent to 225 of your days. A mighty people once lived on Venus and their descendants still linger there, the oldest people alive in our solar system.

"The structures which seem so mysterious to your astronomers and which they call sun-cracks on Mercury, and canals on Mars, are a sheer necessity in the life of every planet at a certain stage. The enormous size of these structures apparently staggers your scientists, who cannot believe that they are human works. This is simply because you judge everything by your earthly standards. You gaze into the universe but you are still earth-bound.

"Now we come to your own planet. Really the Earth should not be where it is. Your legitimate place is beyond Mars, as you are a much younger planet, and were it not for the chance collision of two dark heavenly bodies, with the resultant formation of Earth and Moon, there would be no planet between Venus and Mars. We really bear a grudge against Earth as it has thrown our own planet a few million miles further from the sun and increased the duration of our year.

"Thus is explained the anomaly of your flourishing world wandering in a cemetery of planets, planets which are either dead or dying. Earth by taking up its position at an average distance of 92,900,000 miles away from the sun, not only pushed Mars back, but helped Mercury and Venus toward their doom, bringing them nearer to the sun. More than that, the collision in which Earth originated loosened the bearings of another dead world, which, attracted by Venus fell on it, crushing a civilization far greater than your own. Venus however survived the shock and remodelled itself anew. But your planet will not survive Mars, although your race may survive ours. Your planet is a freak and it shall be drawn into the sun long before the turn of Mars will come.

After Earth comes Mars. Our own name for the planet is Ahrah. Let us leave it out for the moment. The next planet is Jupiter, which is the largest planet in our system. Jupiter, and the remaining planets of the solar system, Saturn, Uranus, Neptune and Pluto are comparatively young, are still cooling, and are, of course, uninhabited. Mercury and Venus are moonless, they have no satellites. Earth has one—the moon. Mars has two, Jupiter has nine, Saturn—nine, Uranus—four, Neptune has one and Pluto —none. Beyond Pluto is the last planet of our system, which is still undiscovered by your astronomers. This planet we call *Bhroh*, it has no satellites.

"Mars or Ahrah is at an average distance of 41,000,000 from the sun. The diameter of the planet is 4,200 miles, nearly half that of Earth, which is 7,927 miles. The mass of Mars is however only 1/9th of the mass of your own planet, the density being 4 times as great as that of water on Earth.

"Mars turns on its axis in the same way as the Earth and our day is only 40 minutes longer than yours. The axis is tilted to the plane of the orbit about 23° 59° thus ensuring seasons very similar to yours. But they are much longer, since our year is equal to 687 of your days or 669 of our own. If we compare your seasons with the Martian ones, we will find the following:

Season	Earth	Mars
Spring	93 days	199 days
Summer	94 days	183 days
Autumn	90 days	147 days
Winter	89 days	158 days

"We too have our polar regions. They consist of small remnants of seas at the north and south poles, which are frozen throughout. During the winter in each hemisphere the snows extend these polar regions and creep forward towards the equator, covering considerable territories. As there are no other surface seas on Mars, the polar caps are our only supplies of natural fresh water when the snow is melting. There were seas on Mars, although not as extensive as those on Earth, and you can see how they were distributed on the map I am sending you now. This map shows the two hemispheres of Mars flattened out. These seas are now practically dry, as most of the water has found its way into the interior of the planet, at first by natural means, then, as evaporation increased, by artificial means for storage purposes. The sea beds are still capable of supporting plant life. They are our hot-houses, as you will see later. We have to manufacture our supplies of fresh water in sufficiently large quantities to support our plants, our animals and our population, the latter being very large considering the size of the planet. Our atmosphere is now very scanty. It contains oxygen, nitrogen and carbonic acid as well as a small quantity of water vapor.

"But the air is so rarefied that flight, for instance, is

absolutely impossible even for birds. These have degenerated now into wingless creatures.

"We do not live outside, in the open, as you do. If we venture outside at all, we wear special suits not unlike your deep-sea diving suits, carrying with us our own supply of air. Such suits are also necessary because the variations of temperature are extreme. While the sun is shining the heat is unbearable owing to the lack of atmosphere, in spite of the great distance from the sun. At night the cold is just as unbearable as the heat at day time, since all the heat received by the surface from the sun is rapidly lost again owing to the absence of the protective blanket of the atmosphere.

"The transition from extreme heat to extreme cold is very rapid, our twilight is short, and if caught outside unprotected, one freezes to death. The major part of our planet is a desert, a more terrible desert than even your Sahara. Your astronomers should see these reddish markings on the planet's face. You should also see some greenish markings which denote the partly-dried beds of our ancient seas, now covered with vegetation. Instead of being oceans of water, they are now oceans of hothouses, dotted with our numerous towns. The atmosphere there is much denser and contains a larger percentage of water vapor. The sun is also not so fierce in the depressions and it is possible to feed our cattle there during the day. In winter, naturally, some of the vegetation dies, in spite of the hot-houses. There are very few mountains on Mars, none of them higher than a 1,000 feet, but the general character of the ground is undulating, with deep depressions here and there, where seas or lakes have been.

"From time to time clouds, as you know them on earth, make their appearance, but the usual kind of cloud we get is a dustcloud, which is one of our greatest enemies. You may just imagine what a sand rain may be like!

"AS I said before, life in the open is impossible on Mars. Many generations back we foresaw the present conditions and took precautions accordingly. We knew that we were losing our seas, we knew that we were losing our atmosphere and thus most of the sun's heat. We wondered what the other planets were doing, the older ones. Mercury gave us the solution of the problem. Our powerful telescopes revealed the ruins of a vast Mercurian system of structures. We guessed their purport. Venus confirmed our theory. The Venusians were rapidly duplicating the Mercurian system. Later we got into touch with them and learned the fate of Mercury and their own conditions. We too decided to build vast reservoirs of heat for conservation of the sun's energy when it becomes scarce. Our open towns were rapidly becoming obsolete.

"Your astronomers saw our gigantic architectural works but they would not believe their eyes. Some of them assumed that they saw open canals serving for irrigation purposes, others decided that they saw a natural phenomenon. We covered our planet with a vast network of corridors built of special transparent, heat-conducting materials of synthetic nature. Each corridor is provided with a non-conducting screen, so that as soon as the sun's energy is cut off by the advent of twilight, no escape of heat is possible.

"The corridors are solid structures extending for thousands of miles and some of them are 12 miles wide. The floor, which is sunk 60 feet below ground, and the roof, have a parabolic section. The height of the corridors above ground varies with local conditions, but some are as high as 120 feet. The roof and the sides are such that they absorb the whole of the sun's heat without reflecting any appreciable amount. This heat is conveyed to a special fluid which, after being heated, is pumped into large tubes built on the vacuum principle so as to keep the fluid hot for at least 49 hours. This constitutes our central heating for the whole of the inhabited planet's surface, which is covered by the network of corridors and our roofed towns. The corridors also serve as the only normal means of communication between the towns. A submartian or underground system of communication, is established for locomotion and transport purposes. Fast trains driven by electronic engines travel to every point of the globe with a speed greater than that of your fastest airplane. 250 miles an hour is their average. The corridors also contain a vast ventilating system for conveyance of fresh air throughout the whole of the network from polar regions where air producers are installed, and where powerful pumps are pumping water from polar seas. Used up air is returned to the producers and is there purified.

"Large towns are served by a twin system of corridors built from 12 to 25 miles apart, the distance between them depending on the size of the towns.

"As you will understand, construction on such a vast scale required an enormous amount of machinery and a huge army of workers. We had to increase our population for this purpose. It took us two thousand years to prepare the race for this enterprise. We started building 5,000 years ago and completed the whole system, as you see it now, 400 years ago. Construction still goes on as new conditions arise.

"The lighting of this system proved to be very troublesome as the ordinary electrical method of lighting was out of the question on account of its waste of power. We finally hit upon a method of producing light in a gaseous space by utilizing the energy liberated by disrupting electrons. This proved to be highly successful, providing heat as well as light.

"If you glance at the map of our towns and corridors you will see that all the towns on the polar borders are air-producing, water-pumping and water-manufacturing stations. They feed the whole of the network. All the towns situated in the ocean beds have extensive farms attached to them for raising cattle and growing plants suitable for consumption. We do not consume food as you do. We have food factories attached to farms where the necessary animal and vegetable ingredients are chemically balanced and prepared in the form of fluids. These fluids are the essence of nourishing products and are usually taken dissolved in water. All tastes are catered for and there are over two hundred varieties of food. Two such meals a day are sufficient to support an adult person for a day and a night.

"Our two moons, which your astronomers call Phobos and Deimos and which we call Buahrah and Muahrah, are very little use to us, on account of their small size and great distance. As you on Earth probably know, Phobos is only 36 miles in diameter and is 5,800 miles from Mars. Deimos is only 10 miles in diameter and is no less than 14,500 miles away from us. They are, like

your own moon, quite inert, having no life on them of any sort."

What I have written above comprises only a small part of the information supplied by Borara. Night after night I covered quires of paper with writing and sketches. When the matter became too important to be trusted to writing I repeated Borara's words into Professor Ostrohoomov's dictaphone which instead of marking a cylinder was recording my speech magnetically on a steel tape. This tape was handed over to Sanders every morning and he deposited it in a safe. I never worked so hard in my life. Borara seldom finished transmitting before 4 o'clock in the morning. I usually slept till one in the afternoon and spent the remainder of the day in arranging and transcribing my notes, and getting ready for the next transmission.

A map showing the ancient seas on Mars.

MARTIAN "CANAL" SYSTEM

A. Air producing and Pumping Stations
B. Site of Borara's station for communication with Earth
C. Site of station for communication with Venus
D. The Capital of Mars (twin town)
E. University Towns
F. Interstellar communication station

ALTHOUGH our enemies did not trouble us much, we knew that we were constantly shadowed, and since Bill's adventures at the "Spotted Cow" we took care to hunt in couples, as we never knew when the enemy was going to strike next. At night we felt pretty secure against intrusion as our electrical defences were perfect and there was enough available to kill a whole regiment of spies. Moreover Mortimer had some of his men posted around the house.

But the enemy struck in an unexpected quarter. Mrs. Ostrohoomov had disappeared. The news was conveyed to me by my wife in person one morning early. It appeared that Mrs. Ostrohoomov went out shopping in Kensington High Street early on the previous afternoon, promising to be back to tea. My wife waited for her till six and then, having had some tea, went out to look for the missing lady. She was nowhere to be found. She then returned home, hoping that the lost one had come back, but her hopes were not justified.

My wife waited till ten before she rang up the police station and started to ring methodically all the hospitals in the West End. There was no trace of Mrs. Ostrohoomov. Greatly perturbed my wife went to bed and in the morning rushed to Hampstead with the news.

Bill Sanders did not hesitate a moment. "I bet you my bottom dollar Colon is at the back of this. He thinks that Mrs. Ostrohoomov knows something about the information from Mars and he will try his damndest to frighten the old lady into speaking." I was inclined to agree with Bill, and having reassured my wife I saw her off to the station in company with Sanders. On our way back we discussed the matter fully and decided on a plan of action. Bill Sanders went to find Mortimer, while I returned to my laboratory.

That night I put the matter to Borara and asked his advice. Borara asked me many questions about Mr. Colon and his associates and advised me to wait. "I do not think," said Borara, "that he will dare to do any harm to the old lady; he might try to frighten her, but she could not give him any information of importance if she tried; she does not know anything, except the fact of her husband's discovery. The professor assured me that he kept things to himself."

I mentioned to Borara the fact that I had to rely on Mrs. Ostrohoomov for the translation of the professor's notes from Russian into English, but assured him that there was nothing in those notes of any use to our enemies. Borara agreed with me that the information was harmless as the professor did not make any notes of the more important items.

After a little while, Borara said: "I would like to know a little more about this man Colon and his plans. If you can get him somehow or other into the chair in front of the reflectors, I will read his mind. Get him here and place him in the chair in such a way that his forehead is in the focus of the transmitter and switch on the power. Leave him like this on his own for about two hours, binding him hand and foot, then get in touch with me in the usual way.

"Being left alone he is bound to think, and he will be transmitting his thoughts to me quite unconsciously. As soon as we learn the facts we can act. If he is guilty I will punish him in a manner that will be more terrible than death. To kill him would be troublesome for you, as the authorities are bound to investigate the cause of his death, and although your medical men would never solve the riddle, suspicion might rest on you. Leave him to me. Mr. Colon does not know what he is up against . . . By the way, I take it that he will think in English, because, otherwise, unless he thinks in Russian, I won't be able to understand him. Anyway we will risk it."

When Bill Sanders returned after a long fruitless search, I explained to him Borara's plan of bringing Colon to book. "Good old Borara," yelled delighted Sanders; "some idea that! . . . Fancy, Colon registering his plans in Mars and having them sent back all pat. This is the best joke I have heard for a long time."

After discussing at length the ways and means of enticing Mr. Colon "into our parlor" we decided that I should write him a letter telling him that I have reconsidered the whole matter and that, having run short of money for my experiments, I am prepared to discuss his proposition again if he would fix an appointment at my Hampstead place. We decided also to apologize for Sanders' loss of temper during his recent visit to our place.

Mr. Colon replied to my letter by the next post. He was delighted to hear that I had changed my mind, and as regards my financial difficulties, he promised that they would disappear "like chaff before the wind." He "shall be pleased to call on me at any convenient time." I fixed the appointment for eight o'clock in the evening of the same day, and sent the letter by messenger.

At 8 o'clock Mr. Colon duly arrived. He was geniality itself. "Dear Mr. Cooper, I am glad to hear that you see my offer in a different light. You are already a rich man from now onwards. Your fortune is made. I have entirely forgotten and forgiven your friend's hastiness." I forced myself to smile and invite my guest into the laboratory. "I suppose you would like to see for yourself how the thing works, before we settle our financial arrangements." Mr. Colon beamed: "Certainly, my boy, certainly, delighted."

I indicated the chair placed in the focus of the transmitting reflector and suggested that Mr. Colon should try to get into touch with Mars for himself. He was only too eager, and in a few seconds I had him in position. The next move was Bill's. In a twinkling Mr. Colon was securely tied to the chair, which had previously been screwed down to the floor. And before the astonished financier could say "Jack Robinson," a full-sized gag filled his mouth . . . pushed in by an expert hand. Mr. Colon's face was very purple when we left him, and his eyes were rolling wildly. Two hours later Mr. Colon was freed, conducted to the door and kicked out unceremoniously by Bill. The astonishing thing about it was that Mr. Colon did not say a word when he regained his freedom. There was no doubt that he was badly scared, as apparently he could not understand our reason for such extraordinary behavior. Anyway, he went away silently, and I got into touch with Borara.

Borara's face was very grave. He started straight away without wasting time. "Mr. Colon is a very dangerous man. I have in front of me a record of his two hour's thinking. At first he was badly frightened and thought that you were going to kill him. He remembered the fate of one of his dupes who was found dead in your laboratory. Later he quieted down, and started thinking calmly.

CHAPTER IV

Mobilization

"BEFORE we go any further let Mr. Sanders proceed to No. 63, Balaklava Street, Forest Gate, and free Mrs. Ostrohoomov, who is being guarded by a woman, in one of the top bedrooms." I stopped my reception and communicated the news to Bill. Bill was outside before I finished talking. "Now let us examine Mr. Colon's intentions," continued Borara, "which he kindly declared himself." Mr. Colon is not his own master, he is working for a foreign country which is striving for World mastery and badly wants certain information from Mars. This information is believed to be in your possession. Your death warrant is already signed, as well as that of your friend, unless that information—is forthcoming. Your house is to be raided, you and your friends are to be disposed of and the whole of your apparatus is to be packed and removed to a house near Croydon. From there the packages are to be sent by airplane to a certain foreign capital.

"It appears that Mr. Colon has behind him a complete organization of spies belonging to that foreign country, but he is not anxious to use it in your case as they will have more important work to do later. He confessed in his mind that he employed a gang of East End roughs to dispose of the professor and the same gang is going to deal with you. He has failed completely to obtain any information from Mrs. Ostrohoomov, and was contemplating the use of stronger means of persuasion. He was thinking of a red hot poker.

"The foreign power in whose pay Mr. Colon is, contemplates a surprise war against your country. Two other powers are in alliance with it and are ready to act at a moment's notice. A strong fleet of submarines is concentrated in the Baltic Sea. On its shores a few miles inland a fleet of swift bombing planes is standing in readiness, carrying deadly gas bombs.

"It is intended that while the submarines are dealing with your unsuspecting fleet, the airplanes will carry destruction to London and other big towns, after they have bombed your airdromes and railway lines. The planes are to be supported by a fleet of dirigibles. Paid revolutionary agents are to be landed at various points to carry on propaganda among the civil population a month before the attack. Spies are instructed to blow up railway bridges, military dumps, trains, and any ships which may be found in port. A series of incendiary fires is to be started at the same time.

"Secret war preparations have been going on for a number of years, and Mr. Colon is perfectly sure that your Government has not the slightest idea of what is afoot. Simultaneous attacks are to be made on your colonies by means of hydroplane-carrying ships, disguised as tramps. Sedition is in full swing in India, in South Africa, among the natives, and in Egypt. The news of the professor's communication with Mars had delayed the attack by a year as the enemy was not sure if the British War Office were in possession of some deadly methods of attack and defence.

"As soon as you are removed and your apparatus reaches its destination, the enemy intend to get in touch with Mars themselves and obtain the necessary information. They have forgotten one thing—the willingness of Mars to supply such information.

"Still, this is unimportant. What is important is that you should act at once. Get into touch with your military authorities and tell them what is going on. They can easily test the value of the news within a few days. Obtain protection for your family and yourself. Mr. Colon is a desperate man, he is being pressed too hard by his paymasters, and if he fails them this time his life is forfeited."

Borara's news left me gasping. I was prepared for any villiany on the part of Mr. Colon, but I never contemplated that the affair would assume an international character. How much time had I at my disposal? How soon could I obtain protection for my laboratory? Should I go out and leave the house at the mercy of the enemies of my country? Bill was away searching for Mrs. Ostrohoomov . . . What should I do? My brain reeled . . . Suddenly I felt ashamed that I, a British officer, should lose my head in a moment of danger! I calmed down and started to reason and weigh up my chances.

I could not defend the house by myself against a gang of desperate men. No doubt the house is watched, but the watchers will not attempt anything yet, till they are in force, since they do not know that we have discovered their plans, unless Colon tumbled to it. No, that is impossible!

The most important thing at the moment is to warn the nation against the threatening danger. How? Telephone is of no use, who will believe such a story coming over the telephone? Go out? Where should I go? It was nearly midnight. The Prime Minister? Is he in London? Would it be too late to wait till the morning? How soon will the enraged Colon start to act?

Finally, I made up my mind. It was no use waiting for the return of Bill, he might go to Kensington, if he found Mrs. Ostrohoomov. Here I made an appalling dis-

covery. Bill had taken with him our only car. It was too late for trains and very unlikely that I could find a taxi at such a late hour. Still I decided to try. I left all the lights on, switched off the power of the outside defences and slipped out of the back door.

Where were the watchers? Were there any of Mortimer's men about? The night was dark. I could hardly see in front of me after the bright light in the room I had just left. As I turned the corner of the house, a sudden sound on my right riveted me to the spot. Somebody was in the garden. After a while I could see a little better. I distinguished a denser shadow in the dark. A man was leaning against a tree looking up at the windows. In front of him was a bright patch of lawn illuminated by the light inside. It seemed as if my retreat was already cut off.

A faint whistle sounded somewhere in the darkness. The man on the lawn suddenly came to life and ran silently and swiftly towards the conservatory door. Before he reached it I vaulted over the low wall into the next garden, hoping that he wouldn't hear me. Fortunately I landed on a bed of flowers and only a faint rustle marked my descent on all fours. Not taking any risks I traversed in a similar fashion a number of gardens before I ventured to climb a wall into the street.

In a few moments I was speeding towards the main road which was completely deserted except for a policeman in the distance. I set out at a smart pace towards the station, only to find out that the last train had left. A solitary lorry came thundering down. I signalled wildly to the driver who stopped, and a few seconds later I was sitting on the tailboard, speeding towards Victoria Station, ten shillings the poorer, but well satisfied.

Towards two o'clock I was passing the Home Office towards Downing Street. It seemed hopeless to try and knock up the Prime Minister, for the police would assuredly take me for a lunatic and lock me up. I decided to try Scotland Yard. There I went, and after a lengthy talk with the policeman at the entrance I was conducted inside and handed over to the Inspector on duty.

I INTRODUCED myself and explained that I was in possession of very important information which I would like to convey at once to the Prime Minister. The inspector had fortunately heard of my experiments and I saw by his face that he was favorably impressed and sympathetic. "I don't know, sir, about seeing the Prime Minister at this hour," he said, "but I will see what my chief thinks about it," and left the room.

After a few minutes he returned accompanied by a distinguished looking grey-headed man who introduced himself as the officer in charge of the political section. To him I told the whole story, starting from the murder of Professor Ostrohoomov up to the last visit of Mr. Colon and Borara's statement. The officer listened very attentively without interrupting me once, and when I finished he picked up the telephone and asked for a number.

"Hello! . . . Hampstead? . . . Carter here. What is happening at 106, the Crescent, What? Nothing unusual as far as you know? . . . Send there half-a-dozen men at once and report to me immediately . . . Yes, extension 239. Right you are . . ." He replaced the receiver and turned to me. "Care to smoke, Mr. Cooper? We shall have to wait a bit till they get the news." We sat in silence for some twenty minutes. At last the bell rang. "Hello, yes, extension 239. A burglary, eh? Got anybody? H'm. Some time ago? . . . Allright. Put a guard in the house. Good-night."

The man's attitude underwent a considerable change. While before he seemed to be only politely interested, now he was visibly moved. He picked up the receiver again. "Switchboard? Get me 10, Downing Street. Yes, urgent! . . . 10, Downing Street? Carter speaking, Scotland Yard. I must speak to the Prime Minister. Yes, most urgent . . . Hello, sir, yes sir, Carter speaking, Major Cooper's house at Hampstead has just been raided . . . He is here now, has some very important news to communicate. Right, sir, we shall be across in a moment.

Ten minutes later the Prime Minister was listening to my story, and in another half an hour the official clockwork started to grind out a lively tune.

Britain was warned in time.

My return to Hampstead was a sad affair. I found Bill standing amidst the ruins of my laboratory and pensively smoking a pipe. He looked up as I entered the room and waved his pipe in the air. "Look, oh stranger, at the ruins of the Herculaneum. Aren't they thorough? Took away every blooming thing, even your electric cigar lighter. A good job you managed to hook it."

On my inquiry about Mrs. Ostrohoomov Bill replied that it was a walkover. He went to the address indicated, knocked up the neighborhood, put his foot in as soon as the door was opened, lifted the woman guardian off her feet and carried her upstairs with his hand over her mouth, till he found Mrs. Ostrohoomov in a top bedroom. Having substituted the guard for the prisoner, he left the house in company with the rescued lady, and motored her down to Kensington. When he returned to Hampstead, he found the house in the hands of the police and himself under suspicion. "There are still two policemen in the kitchen," he added, "drinking our beer at my invitation."

There was no help for it but to dig out the original reflectors of the dead professor from the loft and try to get in touch with Borara by the old method.

Borara apparently forsaw the possibility and came in on enormous power.

I related to him the happenings of last night and told him that all the necessary machinery of state was put in motion. Borara complimented me on my resourcefulness and advised me to rebuild my installation with the help of the authorities. "You must keep in constant touch with me," he said, "I have mobilized the whole of our scientific forces. Over 50 telescopes are scanning the face of your planet at close range of vision, and the observers will not fail to report any movements of fleets or bodies of troops. It will be much better than your observation balloons. Our chemists are looking through old records of war inventions and their reports shall be conveyed to you as they come up. Now take this formula . . . It is the most deadly gas in the universe.

"Now, this formula is for an explosive of unusual power. It can be used for filling bombs and shells. Please copy this circuit. Yes, a parabolic projector, note the selenium cells. Use very heavy gauge wire. Yes, two paralleled alternators. Exactly as you know them.

"It will give you a death ray with a 250 mile range. Oh, yes it travels in a straight line. No, there is no known screen for it . . . Use a joint, just as in your anti-

aircraft gun . . . No, no. The operator will not be in any danger, but see that you do not catch your own troops by it.

"Here is another circuit. It is a submarine detector with a range of 100 miles and a direction finder; don't hurry there is plenty of time. Finished? . . . right.

"Now here is the last one for today. Yes, an ordinary wireless transmitting station. Note well the aerial circuit. Yes, you are right, interference can be created in any given direction. You can jam any station you like. Power? Oh, about 150 kilowatts. That will give you the range you will want.

"Good-bye for the time being, rely on Mars, we are watching . . . Keep a stout heart, and good luck to you!"

I spent a very active month after Colon's raid on my laboratory at Hampstead.

There was no alternative but to replace the whole of the apparatus, and, in view of the emergency, to increase considerably the power of transmission.

The Prime Minister insisted that I should install myself at Whitehall, where a suite of rooms was placed at my disposal. In the meantime disquieting news was coming from all parts of the world.

Dark clouds were gathering in the East.

A civil war was raging in China. Chinese war lords, bent apparently on satisfying their lust for power, were marching and counter-marching the length and breadth of China. No decisive battles were fought. A British secret service agent reported in one of his dispatches: "The conflicting Chinese armies are not fighting—they are training for a fight. They are carrying out maneuvers on a gigantic scale, and are rapidly accumulating arms and ammunition that are pouring into the country in vast quantities from the U. S., France, Germany and Belgium, as well as Russia."

American, French and Belgium "get-rich-quick" concerns were turning out guns by the million without a single thought that these guns might be turned against their own country. Japan had concentrated large armies on the Korean borders, ostensibly for the purpose of defending Korea against the invasion of the Chinese hordes.

This seemed natural enough, but for the fact that the Chinese were being trained by Japanese and Russian instructors while the majority of field officers in the Chinese armies were Germans.

A revolution broke out in Mexico. The old President was fighting with the new aspirant to the rule of the country, and while Japan financed the aggressor, America was supporting the old government.

As a result, Mexico too was accumulating large quantities of arms and ammunition.

RUSSIA picked a quarrel with the Baltic States. Large armies were concentrated on the frontiers, and although no shots had been fired up to then, a state of tension prevailed in Europe.

Poland, supported by France, was arming rapidly, having mobilized the whole of her resources.

The various European powers were watching each other closely. Tension was at breaking point.

A new rebellion broke out in North Africa, and France and Spain were kept busy there. A new "mahdi" manufactured in Constantinople, suddenly blossomed out in the desert, and between preachings of a holy war against the infidels, gave quite imposing demonstrations of his power as a miracle worker.

In Central and South Africa some powerful "jou-jous" were going on among the negroes. Pits were dug in the forests and warriors were purified and prepared for battle by the burning of dry grass torches.

In India constant clashes occurred between the different religious factions.

And while all this was going on, the League of Nations solemnly and deliberately discussed the claims of various nations to membership of the League.

Communism was belching forth fire and hate through its thousands of mouthpieces all over the world. Japan went red and became a republic of Soviets. The intrigues of the Russian Bolshevik Government were apparent everywhere, and large sums of money were distributed by Moscow all over the world.

Strike after strike occurred in Great Britain and the Dominions with an alarming regularity, crippling and paralyzing British trade. Unemployment was increasing by leaps and bounds. New labor leaders were coming to the fore, all of them members of the communist party and dupes of Moscow. Revolution was openly preached in the streets, and mob orators were fervently thanking God for Russia.

The British Government, however, did not seem to be much perturbed by the brewing storm or by the sedition ripening in the country.

Life seemed to flow very much as usual. Politicians talked and talked, financiers juggled with the exchange. Some of the newspapers insisted on clearing out the Russians, bag and baggage, while others were blaming the Government for not assisting Russia to build up her industries and for not granting her loans.

And the dear, matter-of-fact, British public went to bed every night pleasantly tired, but unperturbed by the doings of the foreigners.

The Government made no statement in the House of Commons on the state of world politics. Instead of worrying about events abroad it set out to put its house in order. A new economy campaign was launched. Woolwich Arsenal, for instance, in order to cover its enormous "overhead charges" and to keep the men employed, started to manufacture some electrical apparatus.

The workmen were soon talking about the large quantities of "searchlights" being built by the Arsenal. Some of these "searchlights" of the heavier type went to the dominions. Every ship in the Navy was fitted with one, and a good many of these "searchlights" were distributed along the coast. Needless to say, these mysterious new "searchlights" were nothing but the Martian death-ray machines. Various factories were turning out hundreds of large passenger airplanes and seaplanes, all fitted out with the new "searchlights" of portable type.

These flying machines were built, according to the Government, for civil aviation and in order "to keep the factories open and hold unemployment at bay." Two new wireless stations were nearing completion. A little difficulty was experienced there. The Post Office specifications involved unusual designs. The work was not entrusted to a radio firm, as is usually done, but the whole of the apparatus was constructed at Portsmouth.

The reason for this action became apparent later, when

a bill went through to the effect that no foreign capital should be invested in British electrical undertakings.

Radio firms for no apparent reason were going to rack and ruin. Huge losses were reported by large companies. Shares were dropping to a fraction of their par value. Radio factories were closed one after another and most of the manufacturing firms started to trade in foreign apparatus.

When the Government looked into the matter they found that most of the companies had been bought up by foreign capitalists and deliberately smashed.

A Government official interviewed one or two gentlemen from "New York" on this matter and was referred to their principals in Berlin. There was no hesitation on the part of the authorities. As soon as the bill became law, the two gentlemen "from New York" were told to go while "the going was good."

The whole of the electrical industry in Great Britain came under Government supervision and a Government representative was put on every board of directors. A question was asked in Parliament with reference to the high-handed action of the Government, which was on one hand controlling the electrical industry, on the other hand competing with it by manufacturing "searchlights" at Woolwich Arsenal on mass production lines.

The Minister responsible asked to be given notice of the question. The matter, however, was dropped as the inquisitive M. P. suddenly discovered that his health was not as it ought to be and decided to spend the next few months at Monte Carlo.

Colon's gang, having got away with my apparatus did not give any more signs of life. Colon himself came a cropper. He went clean off his head and had to be placed in a nursing home. His family broken with grief, went to stay with their relations. Mortimer and Bill Sanders, being fully in touch with the events, paid the same night an unofficial visit to Mr. Colon's residence. They were fortunate enough not to wake up the servants and had Colon's study to themselves for the whole night.

A very thorough search was made. A small safe was found behind a row of volumes of the Encyclopedia Britannica, on the bottom shelf of a large bookcase built solidly into the wall. The contents of the safe proved to be rather interesting; a foreign code book, a list of foreign spies in this country with their reference numbers and addresses; a list of agitators, a letter in code from a continental power giving full instructions and a plan of action to be followed on the outbreak of hostilities.

A letter from Moscow giving the names and private addresses of British Ministers, leading military officers and other important people, who were to be assassinated at a given signal. The signal to begin the campaign would be given from a broadcasting station by recital of a certain poem. Needless to say, in the list of intended victims neither Bill nor myself were overlooked.

Mortimer also found a sheaf of dispatches written in code by Colon, but apparently there had been no time to send them.

The two amateur burglars collected their booty and their tools and departed quietly without leaving any trace of their visit.

Going through the list of addresses of Colon's colleagues, Bill made an interesting discovery: the private address of the Boss was the "Spotted Cow." There and then Bill decided that the time was ripe to get even with the Boss, and taking Mortimer into his confidence, Bill made the necessary arrangements.

At 10 p.m. on the night following Bill's burglary the "Spotted Cow" was surrounded by the police and, as luck would have it, the gang were found to be holding an "at home."

Bill quietly entered the room where the Boss presided over an extraordinary meeting convened to discuss the sudden exit of Colon and the complications arising therefrom.

"Hullo Boss! How's life?" remarked Bill genially, standing in the doorway. The gang jumped to their feet at this unexpected intrusion and gaped open mouthed at him. The Boss, kicking his chair away, lurched forward and came close to Bill, who by this time was inside the room.

CHAPTER V

The Last War

AFTER a few preliminary unprintable remarks he seemed to recognize Bill Sanders, who was dressed exactly as on the first occasion of their meeting. Shorty tried to help the Boss' memory by assuring him that it was his long lost pal Bill who had come back. The alarm having somewhat subsided, the Boss, still hostile and suspicious, started to cross-examine Bill.

"Where the h—— have you been to all this time?"

"I have been lagged," said Bill in a breezy manner.

"Lagged?" inquired the Boss incredulously, "what for?"

"Oh nothing, just a bit of a crib as I've done before," explained Bill.

"So you are a crook, are you?" asked the Boss, "a jail bird are you?" Suddenly the Boss' wrath rose: "and what the h—— do you want here, you putty-faced cracker of cribs?"

"Oh, just passing, you know, thought I would look you up."

"Look us up, you would, would you? Now look here, stranger, I don't like the looks of you and I don't care much for your company—get me? . . . Now git, and be smart about it and don't let me find you anywhere near here again, or . . ."

"Or?" politely inquired Bill.

"Or that," replied the Boss, shooting out a huge fist close to Bill's face, apparently for his inspection and proper consideration. Bill looked at it long and thoughtfully.

"Why don't you wash it more often, Boss? If you hit anybody and break the skin, you will give the poor devil lockjaw . . . It's teeming with micro . . ." Bill never finished the sentence. He found himself parrying the Boss' steam hammer-like blows.

The gangsters, excited with the prospect of a battle, cleared the floor of chairs and tables, and ranged themselves along the walls.

The two opponents were badly matched. There was twice Bill's amount of muscle and brawn in the Boss. His gorilla-like arms had a prodigious reach, although his footwork was not all that could be desired.

But Bill did not flinch. Ducking from a straight right, he gave the Boss one on the chin with his left, followed by a lightning hook with the right to the jaw.

Before the Boss knew where his opponent was to be found, a blow between the eyes made him see stars, while his ribs sustained a hard impact with what seemed like a pile-driver. Then something kicked him on the point of the chin, and the Boss decided that he was facing the business end of a mule. His head was shaken in a terrible hail of punches from right to left and all the time the Boss himself was hitting empty air. The lights seemed to have gone suddenly dim. Something caught him in the chest and stopped him from breathing, the pile driver crashed again into his ribs.

Bill was working like a well-behaved twin cylinder engine, his fists shooting out with piston-like regularity, and reducing the Boss' ribs and jaws to pulp. There were no rounds, no intervals, no seconds, with towels and a refreshing gargle. Not even a referee! . . . just the enormous frame of the Boss with two wildly circling gorilla arms and a will o' the wisp whom those huge shoulder of mutton fists could never touch, could never reach.

The terrible punishment was telling on the Boss . . . his heavy breathing could be heard outside. He did not look pretty at any time, but in comparison with his appearance now, his ordinary features were handsome.

"Have you had enough, you swine?" hissed Bill, between his closed teeth. The Boss did not reply. As the last blow shook his chin, he fell like a limp rag doll, collapsing on himself, and went "to sleep."

Bill stopped and looked around . . . The gangsters, white-faced and shaking, stared at Bill as if he were an apparition from a strange world. Shorty broke the silence. "Blimey! he licked the Boss, he did, s'help me."

The police entered the room at the psychological moment. Before the gang realized what happened they were handcuffed. Bill indicated the Boss to the inspector in charge: "Inspector, please take care of this beauty, he is dangerous . . . I charge him with the murder of Professor Ostrohoomov. Incriminating documents are in my hands."

The Inspector looked at the Boss with wonder. "I don't know, sir," he said, "if this is a case for a stretcher or a coffin . . . If he lives, that face of his will take a long time to mend . . . You did punish him, sir, and no mistake."

Bill turned round in search of Shorty. He found that worthy handcuffed, in charge of a burly constable. Bill smiled and touched the constable on the shoulder: "A mistake, I think, this man is in my employ."

The constable thought that he grasped the situation, and grinning sheepishly remarked as he freed Shorty: "Sorry, sir, mistakes do happen on occasions like this. The gentleman did not mention that you knew him." A look of wonder shone in Shorty's eyes . . . He swallowed something rapidly and murmured: "S'truth!"

Leaving the police to deal with the gang, Bill placed his arm around Shorty's shoulders and went with him into the night.

On the 26th of August, at 11 p.m., the Intelligence headquarters on Mars called up Whitehall. Borara came in on full power.

"Good evening, Mr. Cooper, you are still waiting for the enemy to move, I notice." I described to Borara briefly the latest developments, and reported progress in our war preparations. Borara seemed to be pleased with the news.

"Good," he said, "your Government does not let the grass grow under its feet. Well, while you are working hard to make sure of the safety of your country and the whole world, for that matter, I had the doubtful pleasure of making the acquaintance of the leader of your enemy.

"He is a very curious man. He wanted to know if I gave any information to Professor Ostrohoomov and to you that would prove a dangerous weapon in the hands of your countrymen in case of war. I told him that I did not think so, but that I would make sure, if he would be good enough to wait for about half an hour while I looked up my records of our conversations, so that I could then tell him exactly how much you knew.

"I left him thus for half an hour thinking in front of his transmitter. A very careful record of his thoughts was made and I shall give you now the most interesting part of these records.

"It appears that Russia and certain other nations have formed an alliance for the conquest of the world. Russia is going to attack first, and hopes to conquer the whole of the European Continent and the British Isles.

"Part of the Russian army is already concentrated on the Baltic frontiers, ready to overrun the Baltic States and later Sweden and Norway.

"The remainder is facing Poland, which is to be crushed. As soon as Poland is disposed of, Russian troops will combine with her allies in an invasion of Denmark, Holland, Belgium, France, Switzerland, Italy and the Balkan Peninsula.

"The Russian President of the Soviets intends to turn the whole world into a single Bolshevik state with Moscow as its capital.

"The world war should have started a year ago, but owing to the fact that England had established communication with Mars and that there were rumors of your country being in possession of some wonderful engines of war, the Allies have decided to postpone the attack.

"A general strike is to be declared in every country two days before the actual attack is made. This move is calculated to disorganize transport and prevent rapid mobilization.

"Spies have instructions to blow up bridges, tear up railway lines and to set fire to power stations, ammunition factories and government buildings, to mine important roads and to arrange explosions in military dumps. Ships in port are also to be set on fire.

"THE submarines of the enemy allies are to proceed to various destinations and to be ready to deal with the navies of the world. Thousands of airplanes are ready to carry destruction to every center of importance. The larger type 'planes and dirigibles are to be used for transatlantic flight, starting in advance of the main forces. Ships are already on the high seas waiting for the attack to start on the United States of America. Similar tactics are to be employed in the conquest of Australia, South Africa and India.

"As soon as we had the record of the Russian's thoughts in front of us, my colleagues and myself came to the conclusion that the man was not fit to live. I therefore got into touch with him again and punished him exactly in the same way as I punished Colon.

"Well, my dear Cooper, if I were you I would advise

the Government not to wait any longer. Let the British strike first.

"I can give you now the exact disposition of the enemy's armies, navies and air forces. Our astronomer's have been working hard, and in spite of unfavorable atmospheric conditions on your planet they mapped out the areas of danger with the highest precision!"

I spent the rest of the night in taking down Borara's report and marking off on the map the positions of the enemy.

On the 28th of August a general strike was declared. No reasons were given to the Government and the strike leaders kept a determined silence.

There were no half measures this time.

The King, instead of proclaiming a state of emergency, as everybody expected, proclaimed a state of war. All the rebel leaders were arrested and shot at the Tower of London after a drum-head court-martial. Arrest followed upon arrest. The agitating party ceased to exist, every member being shot. Every foreign agent in this country found himself under lock and key awaiting trial.

On the 29th of August the Prime Minister delivered his historical speech in the House of Commons: "Yesterday certain individuals saw fit to declare a general strike intended to paralyze this country. There have been many general strikes in the past, but never in the history of this country have we faced such a strike as this. Never before have British workers been so grossly deceived by their leaders who were traitors to their own people. Aye, traitors in the pay of our enemies.

"Since the Great War of 1914-1918 we have been working untiringly for a lasting peace.

"Today we are faced by an unholy alliance whose aim is no more nor less than the conquest of the world. These three nations in the alliance have already divided the spoils between them. It will be of interest to this house to know that one nation is to have the Scandinavian peninsula, the Baltic States and Poland, also the whole of Canada and the United States of America.

"Another takes the whole of the remainder of the European Continent with the British Isles thrown in, the whole of Asia Minor, and the whole of the African Continent.

"The third is to have all that remains of Asia, including China, India, Indo-China, the whole of the Australian archipelago and South America.

"The enemy is fully prepared for the attack and have large fleets of submarines and airplanes at their disposal.

"I have now to inform the House that in spite of the unfriendly attitude adopted by certain countries, whom we considered our unofficial allies, yesterday afternoon I gave to every ambassador at the Court of St. James, except those of enemy countries, the following statement:—

"I am authorized to give the assurance that if your country is attacked in the immediate future the British Empire will give all the help in its power, provided that your Government will agree to give us liberty to act and to deal with the enemy in our own way, and also will guarantee to assist our forces in every possible way."

There was never such a scene of enthusiasm in the House of Commons as that which took place after the conclusion of the Prime Minister's speech. Except for half a dozen extremist members who made a hurried exit, the House rose as one man and cheered and cheered . . . and cheered.

The general strike collapsed ignominously the same day.

On the 31st of August I forwarded to the Secretary of State for War the following dispatch:

"28th of August.

"My Lord,

"I have the honor to report the proceedings in the air, under my command up to the time of rendering this dispatch.

"Position in the Baltic Sea on August the 27th.

"The flight of the heavy bombing seaplanes from England was effected in the best order and without check. Each unit arrived at its destination well within the scheduled time. The line taken up extended along Skager Rak, Kattegat, Sund, the Baltic Sea, ending in the Gulf of Bothnia with branches in the gulf of Finland and the Gulf of Riga.

"Acting on the information supplied from Mars, our squadrons sighted the enemy submarines going at full speed in the direction of the North Sea, under the surface, with periscopes awash.

"As soon as we took up the position, Martian high explosive depth charges were dropped from a height of 1,000 feet at 30 seconds intervals, for one hour. The whole of the enemy submarine force in the Baltic is destroyed, without the enemy's high command being aware of the fact, as their wireless communication is completely jammed by our two high power wireless stations X and Z.

"Having disposed of the enemy submarine craft, the attacking air force under my command turned in the direction of the Baltic Coast. When five miles from the Coast we accepted the challenge of the Russian, and portions of the German navies. We sank every ship. Our losses are very slight, two 'planes having been brought down by the enemy, but we succeeded in saving their crews.

"When well over land, the forces under my command took up the line of Læningrad, Pskov, Dvinsk and Vilna. At 11 a.m. the vast enemy airdromes, all along the lines, were sighted. Descending to 1,000 feet, we brought into play the Martian 'death-ray machines,' which have an effective range of 50 miles.

"THE effect of the ray was instantaneous. Every airdrome was destroyed, as well as the aircraft contained therein, the death ray detonating the explosives, apparently already on board the machines. We left the sheds on fire. An enemy squadron was met in the air, and every enemy plane crashed immediately it came into the path of the ray. Since the exact disposition of the enemy forces was known, there is no doubt that the whole of the German-Russian air forces on the Baltic Coast is wiped out.

"The enemy planes were apparently loaded with large quantities of gas bombs, as heavy clouds of gas were observed to be rolling in an easterly direction towards the encampment of the Russian troops.

"I have no losses of life to report.

"It is impossible for me to speak too highly of the skill evinced by the officers in command of squadrons, and the self-sacrificing and devoted exertions of their staffs; the command of the smaller units by their officers; and the magnificent fighting spirit displayed by non-commissioned officers and men.

I have the honor to be,
Your lordship's most obedient servant,
W. E. Cooper, Field-Marshal, Commander-in-Chief,
British Forces in the Field."

The next day, news came by wireless from New York.

The Mexican army, without any declaration of war, invaded the U. S. territory, and was marching on New Orleans. An engagement was also reported between the American Navy and an enemy in the East, the latter being supported by a large number of submarines. After a battle lasting for seven hours the American Navy, badly beaten, tried to retire towards the Panama Canal, but the enemy submarines were ready for it there, and battleship after battleship went down, as the torpedoes did their deadly work.

San Francisco, Los Angeles, Boston, New York, Philadelphia, Baltimore and Washington were bombarded by seaplanes, and were practically reduced to ruins. The losses among the civilian population were terrific. Every town was enveloped in a deadly cloud of gas escaping from numerous cylinders dropped by the enemy.

The American Government was caught napping, and they were kicking themselves vigorously for having disregarded the British warning that certain "maneuvers" on the high seas were a sham. During the night, troops were landed at different points from the American coast. Messages were now coming fast from all quarters of the globe.

Russian troops were marching into the Netherlands, Belgium, France, Switzerland, Rumania and Hungary. An invasion was also made into Finland and the Swedish territory.

Other enemy forces were attacking Bulgaria, and marching into Palestine. The most desperate position was in America. Two days before the attack, a general strike was proclaimed by American labor. The American regular forces found themselves isolated in various parts of the country, for even when they took over the railways, they could not establish lines of communication, because many bridges were destroyed, and railway lines torn up before the attack took place.

On the 2nd of September, however, like a bolt from the blue, the British Navy appeared on the scene. The British Government having anticipated coming events, had concentrated a naval flotilla in the Pacific and the Atlantic oceans.

The British attacked during the night.

Before the enemy's navy knew what was happening, "searchlights" points suddenly blazed in the darkness, and whenever the bluish light caught a ship, there was an end to it. British seaplanes coöperated by wiping out the submarines, as soon as they were reported from destroyers, equipped with Martian submarine detectors.

In the early hours of the morning, the enemy navy ceased to exist. The British seaplanes then flew landwards. The marching columns of the enemy were caught in the open and dealt with by the Martian ray.

America was saved!

Similar scenes were happening in South Africa and Australia. There the invading navy was dealt with before they had a chance to attack.

The rebels, nicely purified by fire and ready for battle, were dealt with by the Martian ray. The white man's joo-joo proved to be so powerful that the few who escaped spread the news with the rapidity of radio, and the natives became quite docile once more, handing over trussed up enemy agents, as fast as they could.

Another sharp engagement took place in Finland, and around the Swedish Coast.

Russian and German troops did not have time to do any damage before the Martian ray wiped out the whole of the attacking force. Sweden and Norway were also safe. The only countries to fight the invaders on their own account were Belgium and France, who were always ready to meet the invader.

But, were it not for the British Air Force, they could never have stopped this invasion with their own resources. As soon as reasonable safety was established throughout the world, the British forces started a series of punitive expeditions. This was done on Borara's advice: "Let the civil population of the plotting nations see for themselves the power of your weapons. This will put a stop to wars once and for all."

An order was given to evacuate Moscow and the capitals of other enemy countries. As soon as the civil population left these towns, they were razed to the ground. On the 5th of September, the British Government issued an ultimatum:

"His Majesty's Government of Great Britain regrets to have to announce to the enemy population, that unless they surrender unconditionally, within 24 hours, and hand over to the League of Nations the members of their present Government, as well as every member of the Communist party, and every foreign instructor, adviser and agent, the policy of punitive reprisals will be continued till this request is complied with."

Thus finished the last war on Earth.

A League of Nations meeting was convened in Paris. Nearly 50,000 men stood on their trial. Commisars, junkers, war-lords, and plotters, stood before the international tribunal, trying to justify themselves, and accusing each other. The majority of them were found guilty and sentenced to death.

The President of the Tribunal, in summing up at the end of the trial, said: "In every war the losses among the combatants run into hundreds of thousands. If we now, instead of losing good loyal citizens, hang these 50,000 criminals, we shall not only end wars for ever, but disinfect the globe of its vermin."

The British Government offered its resources to the League of Nations for policing the world, till peace was finally restored.

A universal peace treaty was signed shortly afterwards.

The League of Nations requested Great Britain to retain her defensive Martian weapons for policing purposes, and an international police force was formed under British officers, and stations were established throughout the world.

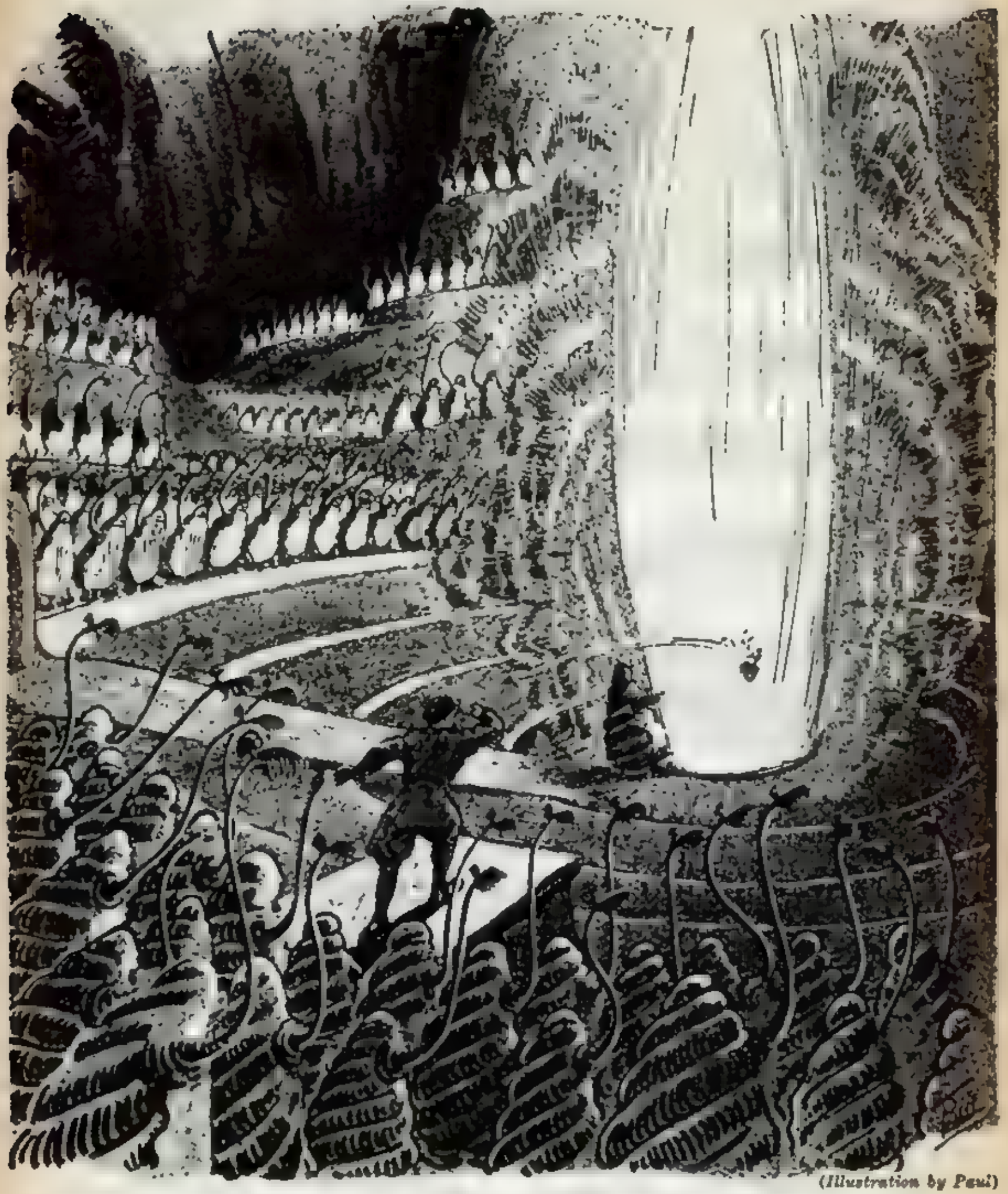
Every country showered honors and titles upon Borara, Bill Sanders, and myself. "I shall want a blooming G.S. wagon to cart about my decorations for me," remarked Bill, after the investiture, which lasted for nearly three hours. "I would not mind it so much," continued Bill, "if the Frenchman and the Belgian would not insist on kissing me on both cheeks. I felt as if I was a kid again, and met my old rich, bewhiskered Uncle Henry."

Bill deserved every honor that was conferred upon him,

(*Continued on page 87*)

UNDER ARCTIC ICE

By **Walter Kateley**



(Illustration by Paul)

With a dramatic flourish I hurled the ignited bundle fairly into the mouth of the gaping chasm. Instantly there was a blinding flash followed by a terrific explosion.

UNDER ARCTIC ICE

THERE was a sudden shock, as if the airplane had received a tremendous blow. I was conscious of a quick rushing of wind and a snapping of stays, while the nose of the machine turned sharply upward.

Abruptly aroused from the half stupor of a long, cold journey, I looked fearfully about while my hand instinctively sought the stabilizing controls. Against the starlit sky I saw the end of a wing crumple and wither, like a leaf consumed by a flame. There was no time to consider causes or comprehend details. A crumpled wing could mean but one thing. Within a very few seconds the plane would be flopping over and over and hurtling to the ground.

With the promptness of a soldier on parade drill I made sure that my legs were free from any entanglements; thrust my hand over my shoulder to make sure that my parachute pack was properly adjusted; clasped the ring of the trip-line and tensed my muscles for a spring.

I hesitated a second to consider. Could there possibly be any mistake? Had I seen something on my glasses, something flying into my eye?

I looked again. There could be no mistake. The left wing was in ruins; was even then swinging downward toward the horizon.

As the machine veered over, I jumped.

To me it was of no consequence that there was nothing beneath me but the trackless and frozen wastes of the great Arctic snowcap. The technique of the practical flyer, drilled into the brain with the uncompromising precision of a fireman's drill, prompted my nerves and muscles to perform this act as automatically as a fireman grabs his helmet and slides down the brass pole.

After a moment of breathless suspense I felt my downward flight checked and steadied by the opening of the parachute; and I knew I had successfully performed the maneuver requiring both luck and skill—which is the only possible salvation of the wrecked flyer.

At almost the same moment my plane went hurtling down past me, indicating that my action had been none too soon.

WALTER KATELEY

THE Arctics, despite the many journeys that have been made into their vastness, still remain places of desolation and mystery. It is suspected by many students of the earth that many events of incalculable importance to the race have had their beginning at the poles. It has been already ascertained with a fair amount of definiteness that our weather is made in the polar regions, and that by detailed study of the weather at the poles we could acquire a science of weather forecasting.

What this would mean to the race is almost impossible to judge, but it would certainly exercise a revolutionary influence on transportation and on agriculture.

Mr. Kateley gives us here an adventure of the Arctic regions that shows some of the great possibilities that lie hidden in the immense ice caps. And perhaps when the Arctic is more fully explored, there will come to light things even more amazing than are pictured here.

Then for the first time I had a moment to consider my situation. I didn't know exactly how high I was. My altimeter had been registering around 7500 feet above sea level; but of course I had no accurate means of knowing the elevation of the terrain in this remote district. But if, as had been estimated by various geologists and other scientists, the Arctic snowcap rose to a height of about a mile here near the pole—I estimated that I was at about 84 degrees—that would leave me approximately 2,000 feet above the eternal snow.

The earth was shrouded in darkness, the intensity of which was only slightly relieved by twinkling stars and occasional weird flashings of the Northern Lights—the Aurora Borealis. But from what I could see I concluded that my hurried estimate of 2,000 feet was not far wrong.

I wondered if I would alight amid rough, broken ice and pressure ridges or on smooth wastes of drifted snow. In either case it was a cheerless prospect and one that offered but little hope for succor. But my spirits were buoyed up somewhat by the natural exhilaration of my rapid flight through the atmosphere.

I had expected to experience piercing cold in this flight but to my surprise I was almost warm, as though I were in an atmosphere that was scarcely at freezing. (When I had last looked at the thermometer it had been registering 34 below, Fahrenheit. I wondered why the air seemed to be rushing past me at such a tremendous rate.

And so this was to be the ending of Professor Pillsbury's philanthropic venture. The two hundred books which he had selected with so much care, and with so much advice and comment on the part of the public, and which had been sent by airplane at such great expense to become the model library of the Permanent International Research Station of the Arctic, were already buried deep in a mass of tangled wreckage.

And I, who had considered it an honor to be chosen as the bearer of this unique gift, would shortly be an infinitesimal, dark dot on the white surface of the endless reaches of snow and ice!

But there was little time for thoughts on the vagaries of Fate. I must attend to the business of landing. I must be nearly down now!

I STRAINED my eyes to make out what was below. All was pitch darkness directly under me, which seemed queer, especially since a little way in the distance I could see white snow and broken ice gleaming in the dim starlight.

All of a sudden the horizon seemed to shoot up past me on all sides, and it seemed as if I was dropping into a great hole.

The stars were still shining above, but on all sides was black night; while the intensity of the upward rush of air was even more pronounced.

Looking down I was astonished to see a great number of tiny points of light. Could these be stars? I wondered if I might not be looking at a reflection of the sky. The idea that I had fallen into a hole was dissipated by the realization that the starlit area below me stretched away in all directions.

I wondered if possibly I had become confused and lost all sense of direction, and if what seemed "down" to me was not really down?

I had heard that at the Pole all horizontal directions became as one; every direction being South.

I wondered dimly, half whimsically, if what was normally "up" and "down" also became as one direction, and would that one direction be up? Perhaps I had wandered from my course and was at the Pole!

This was obviously a senseless thought, and not one that should be indulged in in an hour of conscious wakefulness.

This confusion of direction was more like a dream experience than anything real.

Could it be, I wondered, that I had been unconscious from the cold—I remembered that I had been almost unendurably cold—and that I had fallen into that sleep that usually precedes the end when one is frozen to death? And was this only a troubled dream, the vagary of an expiring mind?

But no. It could not be. I was suddenly conscious of hearing a sound; a sound that was unmistakably real. It was the ringing of a bell, somewhere in the distance.

Although the sound was reassuring, it was nevertheless unexplainable. Who could be ringing a bell here, in the frozen wilderness, hundreds of miles from the nearest human habitation?

I gave it up. There would be time enough to consider such anomalies when I had landed. And presently I did land, safely, but not very gently, on a hard surface of snow.

Disengaging myself from my parachute, I left it lying where it fell and attempted to get my bearings.

It was very dark, but I thought I could make out the edge of the snowdrift on which I had landed. I could see tiny specks of light in the distance in all directions, but none that seemed close by. There was, however, one star-like glow that appeared a little brighter than the rest. I made for it.

I soon came to the edge of the snowbank—it seemed to be melting rapidly—and slid down onto solid ground. It was good to be on firm footing once more; but I found it rough and hard going in the darkness.

As soon as I left the snow, it became oppressively warm. I sweltered in my thick Arctic clothing. My feet commenced to feel as heavy as lead. An overwhelming weariness beset me.

The length of the journey, together with the cold and the excitement I had experienced, had practically exhausted my strength. The change into warm atmosphere made me sleepy. I thought I might as well rest a while, and then go on. My feet encountered something that seemed to resemble a heap of straw or shavings. To me it was a providential find. I slipped off my coat and boots and slumped down, as I told myself, for a short rest. For a few minutes I tried to reason out what kind of a world I had fallen into, and what I ought to do. Then I fell asleep.

I awoke wet with perspiration but much refreshed, and with the feeling that I had slept several hours.

Sitting up to look about, I saw that it was already getting light; though I could not see that the light came from any particular direction, as it does at daybreak. Only the visibility was becoming greater.

Soon I was able to make out something of the landscape, which seemed fairly level and sprinkled with small trees. Presently appeared the outlines of numerous slow-moving shapes. I could not make out whether they were wild animals or human beings.

THE stillness was broken only by a low, indistinct hum in the distance, like the sound of machinery.

Then a bell-like sound, such as I had heard during my parachute descent, rang out clear and distinct; and at the same moment the light suddenly became much brighter.

The effect was as of the sudden lighting up of a great theater. But the distances were more magnificent and the light effects more varied than in any playhouse I had ever seen.

I was in a vast, cone-shaped place seemingly a mile wide, the sparkling walls of which mounted up and up to apparently interminable heights and ended in an open circle of blue sky, where there shone twinkling stars such as one sees from the bottom of a deep well.

The lights, rapidly changing in color and intensity, sparkled and danced on the gleaming distant walls. In some places they appeared white as frosted snow; in others blue as the heart of a glacier.

Now it was evident that the light was coming from one particular location somewhere behind me; and its rays, reflected from the ever-curving walls at a myriad different angles, gave all the colors of the spectrum.

Here was an area that partook of the beautiful green of the emerald, and there were the deep, shooting fires of an opal. There was an area that resembled the indescribable shades of a sunset sky, and another that was the perfect replica of a tropic sea.

I was so enthralled with the magnificence and weird beauty of the scene that I was scarcely aware of the beginning of a melodious sound that gradually dominated my attention.

As the light went through various stages of color and intensity, finally becoming pure daylight, this swelling volume of sound seemed to fill all space.

It was as though a myriad of exquisitely-toned musical instruments were playing in unison.

The sound was so altogether soul-thrilling and inspiring

that I devoutly wish I could describe it. But I find that words—such words as mere spoken language knows—are utterly inadequate and powerless to more than vaguely hint at its entrancing quality.

Loud and clear and perfectly modulated, it seemed to arise from the very earth and spread in all directions until it rebounded from the distant curved walls and ascended, with ever mellowing rhythms, to the topmost reaches of the cone.

Never had I heard any sound—it was more than music—that could in any way compare with it. But there was an indefinable something about its intonations that was suggestive of divine worship.

It had recently been my privilege to attend the celebration of High Mass in Westminster Cathedral in London; and the all-pervading sounds of the music and intonations in that architectural triumph of acoustics were the weak semblance of this I was now hearing.

But what, I wondered, could be the texture and structure of musical instruments that could produce such indescribable melody?

As the sounds died away, I saw with some surprise immediately before me an impressive scene, which due to the light display and my raptured listening to the music had so far escaped my notice.

There was a great smooth green field, here and there broken by small ponds and interspersed with small trees—everywhere, near and far—there was a multitude of queer shapes. Somewhat of the shape of queen conch shells they were, except perhaps a bit more slender and a little less pointed at the small end; or perhaps I should say the top end, for they were in a somewhat upright position.

They were nearly as tall as an ordinary man, or so it seemed to me. The nearest one was some fifteen or twenty rods distant. They were all perfectly motionless, and all leaning in the same direction. Their attitude was for all the world like that of a great congregation kneeling on prayer stools from whence the pews had been removed.

Looking closer, I saw that each was apparently supported in its leaning posture by a small slantwise prop extending from about halfway up the body to the ground.

From their attitude I instinctively concluded that they really were worshippers; but because of their peculiar shape it seemed impossible that they could be human beings.

They were not all the same color; some seemed to be brown and others pearl grey. At first I suspected this was merely a difference in their costumes, and yet they did not seem to be wearing clothes but to be covered with some smooth, shiny substance such as burnished metal or polished shell.

CHAPTER II

The Shell People

MY first impulse was to emerge boldly from the heap of what now in the light of day looked like coarse excelsior, in which I was partially hidden, and go at once to see what manner of creatures these were.

But I restrained myself. It occurred to me that my reception might be anything but pleasant. They might be some sort of wild beasts that would pounce upon me and rend me, or possibly stampede in fright, trampling me under foot.

Perchance they were only the domestic animals of the people who inhabited this strange world into which I had blundered. I was convinced there must be creatures of human intelligence somewhere about, else why the lights, the bell, the wonderful music?

Although they stood motionless, I knew they could move; for I had seen them assembling in the dim light before the sudden dawn. At least, I felt fairly sure it was they I had seen moving slowly about.

Even though they were human, they might be savages; even cannibals. The thought that they were engaged in divine worship was more or less reassuring; but even that might mean little, since it often happens that the most bloodthirsty tribes of savages are the most devout of god-and-devil-worshippers. The darkest period of earthly history—that of the Inquisition—was characterized by excessive religious zeal.

At any rate, I decided I would not intrude while they were thus engaged; in case this should prove to be a form of worship, such an act might enrage them and afford some pretext for doing away with me.

I sank back into hiding, resolved to be cautious and await developments.

For what seemed a very long time nothing happened. Then there was a single stroke of the bell in the distance, and I peeked out to see the strange beings all in motion; singly or in little groups of two or three they moved away, some in this direction, some in that.

Their movements seemed slow and cumbersome as they balanced along on two little short legs that scarce lifted their bodies clear of the ground. None of them passed very near to me; evidently I was in the midst of a small tract of wasteland, somewhat remote from their paths.

When nearly all the rest had gone, I noticed two of them coming almost toward me; but they turned aside and entered a tiny thicket of trees and bushes, in the center of which I could make out a sort of low, frame-like structure. Here they remained; but occasionally I caught sight through the foliage of their dim outlines.

After an hour or two, I decided to try to get close enough to see what these creatures really looked like, and what they were about. I was commencing to feel very hungry and thirsty; and I realized that sooner or later I must learn to cope with my new situation.

Lying flat on the ground, and keeping as much under cover as possible, I managed to creep and wriggle to the fringe of the little thicket.

Here the low bushes screened my movements so thoroughly that I had little fear of detection, and I skulked along in a half-standing posture.

Suddenly, before I realized I was getting close to the object of my quest, I looked out from a clump of especially dense foliage and saw right before me and scarcely a dozen paces away a long, low workbench and beside it the two strange creatures.

I was so close I dared not attempt to retreat or even move for fear of attracting their attention. I could only crouch and gaze spellbound at one of the strangest sights, I am sure, that ever mortal eyes have seen.

They appeared to be people of a sort; yet so utterly unlike all the kinds of people I had ever known as to be scarcely recognizable as such. The two looked much

alike; I concentrated my attention upon the one nearest, who stood facing directly toward me.

Like the ones I had seen at a distance, he was somewhat conical in general contour; but there was a very gradual outward curve from top to bottom, and he was enclosed in a thick, smooth shell open on one entire side, where the aperture was bordered by heavy rolled edges.

Filling the upper portion of this aperture for perhaps the last foot was what I took to be the creature's head and face, although I could see no eyes.

There was a smooth upper portion somewhat resembling a human forehead; and below what appeared to be a broad, short nose surmounting a spacious mouth.

This mouth was human in contour and of a kindly, almost jovial expression but inordinarily large. Where one might expect to find ears, I could detect no trace of such organs.

OF a chin there was only a mere trace; beneath this was an expanse of delicate white skin. The remainder of the front was covered by curtain-like garments suspended from the sides of the shell, and composed of some cloth-like material.

The stubby and sturdy legs, hardly a foot long, protruded below the heavy shell in such a manner that the creature had to lean forever forward in order to balance. The legs were bare, and ended in sturdy, elephant feet.

From near the left side, and considerably below where one would expect a shoulder to be, there protruded a limb that was rather like a human arm except that it seemed to have several joints fairly close together; and it terminated not in a hand but in a single finger-like process not unlike an elephant's trunk. This was no doubt that brace-like member on which I had seen the creature leaning at daybreak.

But strangest of all, in fact entirely incomprehensible, was the organ that sprang from the region where the right arm should have been, had this been a human shape.

Perhaps four feet long, and resembling the slim and many-jointed neck of a swan or flamingo this member encased in a net-like sleeve hung in a long loop and terminated in an amazing creation that seemed neither animal nor human.

Had it not been for the long connecting member—shall I call it a neck—linking it to the main body, I might have mistaken it for a separate animal as it performed on the workbench.

It was perhaps a foot and a half long over all, half as high and a third as wide. It would weigh, I fancied, about fifteen or twenty pounds. Extending out on all sides was a strange assortment of variations of human fingers and hands. Some were large and powerful; others tiny and delicate. One member might be composed of but a finger and thumb, while the next one would have five fingers and two thumbs or no thumb at all. Some seemed to be jointed like human fingers; others were mere flexible tentacular processes capable of universal movement.

Surmounting the middle of this complicated organism was a small turret-like member a little larger than a man's fist, and capped by an irregularly-shaped patch of shell resembling the main covering of the parent animal.

From beneath the lower edge of this cap peeped two tiny ears; and here, I saw to my surprise, were the eyes which had been missing from the creature's face. They were not greatly unlike our own eyes, although somewhat smaller.

This seeing and hearing organ was apparently set on a veritable owl's neck; for it revolved and darted this way and that with bird-like agility.

The creature was working on some kind of mechanical device the nature of which I was unable to determine; and this working unit—half head and half hands—which for want of a better word I propose to call the auxiliary, was busy with some small metal parts which it seemed to be fitting together.

The bench was strewn with a variety of queerly-shaped tools some of which the creature picked up and used with great quickness and dexterity.

The various members seemed to be either hands or feet, as the occasion demanded; for they functioned in running this way and that with speed and agility. Occasionally the organ doubled around, end to end, in order to use many hands in one place. Again the members at one end moved about in quest of some tool or part while the other end was doing some bit of filing or other work.

Now and then it squirmed about in such a way as to bring the eyes in proper position to see what was being done; and from time to time something was held up before the eyes for inspection.

It was such a marvelous performance, and the whole creature was so altogether strange and interesting that I forgot my own position and the whole circumstance of my being there. Suddenly, as I leaned a little farther forward to see what the auxiliary was doing, a small twig broke with a pronounced snap. Instantly the pair of alert eyes were focussed upon me.

It was a tense, awkward moment. I knew not whether to retreat or attempt friendly overtures.

That I had to do with creatures of human, if not superhuman intelligence, I had no doubt. On the spur of the moment I decided to act as though they were normal people and see what would happen.

"Pardon my intrusion," I said with as much self-possession as I could muster, at the same time stepping into the open.

With a swift movement the one arm came into play, sweeping the auxiliary from the bench and thrusting it under the curtain-like clothing on the right side, close to the thick shell rim.

Here the auxiliary huddled, covering itself up all except its eyes. But the eyes evinced no fear or hostility, only amused interest. The other workman followed suit, and both rose to their feet, rendering them only two or three inches taller.

THE one I had addressed made no reply. I advanced to the opposide side of the bench and stood irresolute, uncertain what to do next.

I wondered if the creature could speak. I hoped, while I almost feared that he could. Naturally I wished to appear friendly; but I was at a loss to know what sort of gesture of friendship to make. Should I offer to shake hands? The creature had no hand to shake.

Perhaps I ought to offer a gift.

"I am sorry to have disturbed you," I apologized, looking uncertainly from the observing eyes up to the face and back again to the eyes, not knowing which I ought to address.

For a moment both stood regarding me in silence; and

I noticed that the one I was speaking to was a trifle larger than the other, and his face—if one could call the portion of an animal's anatomy lacking both eyes and ears a face—seemed a bit darker and somewhat more wrinkled as if by age. His shell also appeared a little thicker. They were both of the same color; a clear, translucent brown like the color of a freshwater snail.

There was an awkward pause; then the shell of the larger one revolved slightly toward his companion, and he gave voice to some expression.

Of course, I could not understand the words. But I did realize that they were uttered in the most wonderful and impressive voice I had ever heard. Though the tones issued from the mouth, yet they seemed to come not from the throat or chest as do ours, but from the depths of his whole form. It was as if his great shell were a huge sounding board vibrating to a delicately-tuned instrument. The timbre of the voice was so thrilling and awe-inspiring that I instinctively felt myself to be in the presence of one of great intelligence and deep feeling.

The other made answer in the same marvelous manner. It was not hurriedly or excitedly, as would have been natural in view of the sudden appearance of such a freakish creature as I must have seemed to them, but in measured, resonant tones that made my own words by contrast sound ridiculously shallow and squeaky.

And now I realized that the wonderful and all-pervading music I had heard at daybreak had been a chorus of the voices of these strange people. That they were really people I could no longer question.

Again I considered tendering a present. I felt in my inner pocket for something to offer. The first thing to come to hand was my fountain pen.

I drew it out and proffered it to the one across the bench, just as he was turning back from addressing his companion.

He drew back as though slightly startled and instantly from the vicinity of the all but hidden auxiliary there shot forth an instrument that looked like a cross between a flashlight and a pistol. It was obviously a weapon of defense.

Both my offering and my gesture had been misinterpreted.

I made a rather nervous attempt to laugh it off; and removing the cap from the pen, made a few marks on the smooth bench top. Then I again offered it to "mine host."

He laughed understandingly; the most musical, ringing laugh imaginable. It was a laugh that seemed to set his whole being to vibrating like some wonderful Oriental gong; that filled the very atmosphere with a joy and a sense of pleasant well-being that was altogether contagious and that banished all sense of repulsion or fear that I had felt for these newly-discovered creatures.

With the help of the substitute for a left arm the auxiliary came forth from its retreat and took the pen from me in one of its numerous hand-like processes and examined it minutely, while the smaller companion drew closer and looked on with interest.

Then with both auxiliaries regarding me from the bench, the principals settled down on the rims of their shells and discussed me for a moment or two in language that was Greek to me, but in voices that inspired me to the greatest wonder and admiration.

Presently the larger of the pair brought out an instrument from somewhere about his person; a device that seemed to be a tiny replica of himself, except that the open side of the shell was entirely taken up by a small keyboard. This was passed to the auxiliary, which made a series of adjustments, in the manner of writing on a typewriter. Then it was held up to the wide mouth, and a conversation took place with the big voice of the large creature and the little voice of its tiny replica speaking alternately.

This performance must have been an announcement of my arrival; for presently several low cars appeared on the road that I now noticed ran along the edge of the wasteland in which I had been hiding, and over a small hill in the direction whence had come the sound of the bell.

The cars looked something like the low trucks which we use for hauling goods in warehouses. They were no more than a foot high, and were composed almost entirely of a light-colored material which I afterward learned was aluminum.

However, they differed from freight trucks in that their workmanship was elaborate and ornamental. That the cars should be especially low seemed quite natural since the people were obviously poor climbers; and that they should ride in open cars also seemed natural since in this little world there was conceivably no rain or wind to contend with.

On each of the cars there were two or three passengers.

CHAPTER III

Before the Horgost

THE cars drew up beside the outdoor workshop, and the occupants, perhaps a dozen in number, all looking very much alike to my inexperienced eye, helped each other to dismount; very awkwardly and clumsily, I fancied.

The individual to whom I had first spoken—I soon learned that he was called Barbon—went to meet them and evidently proceeded to tell them of my arrival. As they gathered round me he assumed a sort of proprietary air and exhibited me as one might some pet animal or other prized possession.

He removed my cap, turned me around and exhibited my hands, all in the most friendly manner but with a somewhat disconcerting familiarity.

Then one of the newcomers, evidently an official of some sort, began to ask questions; most of which Barbon apparently could not answer. Then he endeavored to question me by unintelligible words and signs. But Barbon interposed. If one might judge from his tones and gestures, it was not for others but for him to communicate with me.

Though I could not comprehend most of his gestures, performed with his somewhat ungainly substitute for a hand and arm, I naturally inferred that they desired to know whence I came and the manner of my arrival. So I tried to show—I hope somewhat intelligibly—in pantomime and with the meager stock of gestures commonly used by users of the English language how I had flown from a far-off land, and how I had met with an accident and fallen into this strange world. I pointed to the place where I believed I must have landed.

Some of this they must have understood, or at least thought they understood; for they appeared satisfied and fell into animated discussion among themselves.

When Barbon again turned his attention to me, I signaled that I was thirsty and needed a drink.

I had some difficulty in putting the thought over; but presently he understood and a small jar of clear water was produced from somewhere about the shop.

After a good drink I felt greatly refreshed. Indicating that I wished to show them something, I pointed to the snowbank some distance away and to the spot where I had spent the night and where I had left my heavy coat and some of my thicker garments. But my attempt to lead them to the place proved futile, for the way was rough and rocky and they could make but little progress. They refused to permit me to go more than a few feet ahead of them.

Finally the problem was solved by the official, who used a queer communication disk and soon had a work car brought from somewhere; a car that was equipped with almost human-seeming devices.

This car went ahead of us, picking up the stones and other obstacles and throwing them aside, thus smoothing a way so that the Tovarts—I soon learned that these strange beings called themselves Tovarts—as we call ourselves people—were able to follow.

Soon we came to the clothing I had left, which I picked up and exhibited to my new found acquaintances. Then after much delay and difficulty I succeeded in assisting three of them—including Barbon and the official—to mount the snowdrift, where we found my parachute just as it had fallen.

The official would not allow us to take it up; I gathered from his gestures that he intended to have it photographed.

I hoped my plane might have found its way down the great funnel and into this snowdrift, though I knew that in falling from such a height it could not escape being hopelessly mangled and broken. Even thick snow could hardly be expected to save it.

The snowdrift seemed perfectly round in shape, as did the top of the funnel, high above; and I concluded that this drift was the result of some recent storm on the surface of the snowcap.

Snow falling or drifting through that opening would naturally fall straight down, since there was no wind, thus forming a circular deposit. The whole accumulation seemed to be melting and running away very rapidly.

After a short search my hopes were indeed realized. We found a deep, ragged hole at the bottom of which were to be seen small fragments that were unmistakable evidence that my plane was buried in the snow.

Gestures of Barbon and the official indicated that they proposed to have it reclaimed.

We returned to the outdoor shop, where I was loaded into one of the waiting cars and accompanied by Barbon carried away over the hill. Beyond this low hill the little world presented a very different aspect. The open spaces gave way to a populous city.

It was a city of wide, straight streets and regular squares; but the buildings, unlike our own, were not composed of solid walls and weatherproof roofs. Nor did they seem to be hotels and office buildings, but rather huge structures open to the world on all sides and at the top.

Some of the lower structures contained great collections of bottles and other glass containers of all sizes and colors.

Various colors of smoke and fumes arose on all sides, and strange mechanical devices, some at rest and some in motion, gave one the impression of a great outdoor laboratory.

EVERYWHERE were lifts and escalators, and numerous Tovarts were hurrying up and down. I saw no stairs; and I afterward learned that they had none; probably due to the fact that they were too poorly equipped physically to make use of such a device.

Very soon we came to a structure less unlike our own buildings than any I had ever seen. It was composed of several tiers of graceful stone arches, and there was an indefinable something about its impressive facade that seemed to suggest that it was a government institution.

We entered the building and leaving our cars on the ground floor and taking the lift, quickly ascended to one of the upper floors.

Here we halted in a small room open on two sides except for a low grating and overlooking the surrounding city.

All of our party except Barbon and the official took their leave. These two waited with an air of expectancy making in the meantime some little attempts to entertain me and at the same time to extract information.

Food was brought, and we partook of a most incongruous but to me most welcome meal. Each of us was provided with a small high table but no chair. My companions had no use for chairs. For them to be seated was a mere matter of settling the base of their shells on the floor and drawing their stubby legs up under their apron-like garments. So I stood while I ate.

My companions placed their auxiliaries on the tables; and these proficient little busybodies proceeded—to make use of an apt colloquialism—to feed their faces.

The food consisted of a small dish of some kind of porridge of unfamiliar taste and composition; some stewed green sprouts not unlike asparagus and a portion of baked fish; the latter discouragingly full of bones.

I was most interested in Barbon's auxiliary, for it seemed I fancied, more dextrous and proficient than the others'.

With one member it held the bowl a little up from the board. With two others it applied salt and some other seasoning; with yet a fourth, and while literally sitting on end, it ladled up the food in a gourd-like spoon and passed it to the waiting and capacious mouth. It did not empty it in, however, until it had been properly blown upon and tested for temperature!

With deft and nimble fingers wielding an assortment of implements, it cut up the sprouts and arranged them in dainty little morsels that seemed almost comically out of proportion to the size of the mouth for which they were prepared. And when it came to removing the bones from the fish, I witnessed a performance that for quickness and proficiency was indeed a revelation.

Not one or two but fully half a dozen of the organ's various processes joined in the work; and the bones were snatched out so quickly that I consciously envied my companion the service he was getting.

I was especially hungry and not a little nervous and flustered by all that I was experiencing and so found the numerous bones most troublesome and annoying. I suspect that my clumsy efforts seemed especially awkward

to those bright little eyes that always appeared to find time from their work to watch what I was doing. Did my lack of dexterity give these strange companions of mine a feeling of superiority? If so their decorous demeanor gave no evidence of it.

Now that I was getting a little used to them, they appeared to be quite likeable creatures. Their wide but agreeable mouths were capable of most engaging smiles, and their voices were a never-ending revelation of soul-thrilling grandeur.

I believe I should have reveled in the joy of hearing these entrancing voices had I known their possessors to be the most savage cannibals, who were planning to roast and eat me the next moment.

When the meal was over, the auxiliaries arranged the dishes and cutlery in an orderly way and then composed themselves on the edges of the tables.

It seemed almost a deprivation that they themselves had eaten nothing; although of course I knew they drew their sustenance from the main body, the same as any ordinary limb or other member.

In the streets below and in the neighboring buildings there was so much of interest that I scarcely knew what to look at first. But presently we were summoned by a messenger who was distinguished by a brilliant apron-like uniform and were ushered to the open top of the building and into the presence of a very dignified and august gathering.

PRESIDING over the assembly was a Tovart who was not unlike his fellows except that his front was draped with somewhat richer fabrics and his auxiliary was deposited on an ornate stand before him. My companions and the others carried theirs in retirement, partially concealed beneath their draperies.

I felt instinctively that I was in the presence of the chief dignitary of this strange community, and I only hoped that I might make a favorable impression.

The Horgost—for such was his official title—smiled with grave amusement when I was brought before him, and proceeded to question Barbon and the official in a way that signified the keenest interest. He even addressed one or two unintelligible questions to me.

In the midst of this conference a group of Tovarts arrived bearing, to my surprise, a large basket containing the battered but easily recognizable remains of the select library that had comprised my chief aerial cargo.

I was agreeably surprised to know that it had not been utterly destroyed, and that it should have been so quickly salvaged. I wondered what my hosts would make of it.

It immediately became the center of interest. Under the Horgost's directions volumes were taken out and passed to him and to all present.

Auxiliaries came forth from their retirement, and soon all were absorbed in critical examination of what to them were apparently very novel affairs.

At this moment came the clear, dominating note of a bell; the same, I suspect, that I had heard in the morning; now it seemed much closer by.

With one accord the whole assembly put down the books, retrieved their auxiliaries and faced in a single direction.

As the sound of the bell died away, there arose from those about me a wonderful and melodious chorus which I at once realized was the same as I had heard in the distance at daybreak. Now, heard at close quarters, it was if possible more enchanting and inspiring than before.

Scarcely daring to breathe lest I break the spell I stood listening, fascinated by the grandeur and beauty of it all. The creatures about me no longer seemed like living things, but rather like celestial and glorified musical instruments played by some great master.

If their lips formed words I was unable to distinguish them. I was only conscious of an overwhelming harmony that seemed to pervade my very being and to transform the universe.

Then, lapsing into silence, each individual rocking forward assumed a leaning posture; supporting himself from falling by his braced stiff arm. There they remained, absolutely silent and immovable; engaged as I guessed and later came to know, in meditation and prayer.

For a time I stood stock still, not knowing what to do, and fearing to move lest I create displeasure. But as time went on and no one seemed aware of my presence, I commenced to feel the strain of standing erect and I ventured to sit down quietly on the edge of the large basket containing the books.

I saw that all activity in the streets and everywhere had ceased. There was no longer the sound of machinery or other commotion, no movement anywhere.

I fell to considering the life of these strange beings. Where had they come from? How did they live? What was the source of their daylight, here under the great snow-cap?

And now that I had an opportunity to observe them in more detail, I noticed that a large sprinkling of individuals wore shells of lighter color, such as I had seen in the morning. I now realized that they were not grey but true mother-of-pearl color. Some were of exquisite beauty. These lighter colored ones seemed to be smaller than the others; I fancied their faces were a little more delicate of outline and their apron-like garments were of lighter hue and finer materials. I at once concluded they must be the females, and such proved to be the case.

What a harmless and inoffensive religion this was! I thought. Just some music, then a period of prayer and silent meditation. Later I was to learn that this was not the whole of their religion.

It was more than an hour before the bell again was struck and the silent figures once more became animated.

After the books had been examined and discussed at considerable length, the Horgost again turned his attention to me and there followed a colloquy which I judged from tones and gestures had to do with what was to become of me.

Apparently Barbon argued that I should be left in his keeping, while the official considered it his duty to take me in hand. It was evident that Barbon was a person of some importance, for he was listened to respectfully by all present. But at length his opinion was overruled and the Horgost made signs to me that I was to go with the official.

CHAPTER IV

The Story of the Tovarts

DESCENDING to the ground level we again mounted one of the low cars and returned to the central snowbank. I found that several machines had been at work and a lane had been cut through to the wreck of my plane, apparently by a melting process; and the machine, twisted and mangled almost beyond recognition, had been dragged out.

My companion took charge of further operations and the whole wreck was loaded onto a flat truck and carted away to the open-air shop where in the morning I had found Barbon and his co-worker.

After that I was taken to a sort of museum and spent the rest of the day there as one of the exhibits; while the official played showman and apparently explained all about me to all comers.

There were three more periods of worship, an evening meal and then to bed. High time for me; I felt that day had been a liberal slice of eternity.

But the matter of retirement presented complications; although the process was more than simple for mine host. At bedtime the Tovarts congregated at a placid little lake not far from the state building.

When we arrived there were a great many of them floating on the placid water, which was surrounded by low grassy banks less than a foot high.

They floated face upward; the heavy butts of their shells sinking so low that their fronts were in a horizontal position.

The manner of their entering the water was quite unique, and required the assistance of a piece of rope about a dozen feet long which was fastened to the ground perhaps three yards back from shore.

There were a number of these ropes placed at intervals all about the lake; and each Tovart on preparing to enter the water picked up the free end of one and, turning his back to the water, balanced on the edge of the bank. Then holding tightly to the rope he steadily tilted over backward until he was in a nearly horizontal position. At last he fell with a little "plop" and floated away.

Very peaceful and restful they looked floating in groups in the twilight, entirely motionless except when they bobbed a little on the waves sent out by some new arrival or thrust an arm overside to maneuver for position.

But when I came to the shore, a great many wide-awake little auxiliaries popped up to watch my actions.

Barbon was waiting with several others when we arrived. They and the official entered into a conference punctuated by many doubtful tones and dubious gestures. What to do with me was obviously a problem.

At length a decision was reached; Barbon producing his tiny telephone and carrying on a somewhat extended conversation while the rest waited in silence.

Results were almost immediate; within a few minutes a car arrived bearing a large, grotesquely painted imitation of an overgrown Tovart's shell.

It must be, I surmised, some sort of dummy shell for use as a theater prop or in a pageant. However, it was evident that it was now designed for my sleeping quarters. The apronlike front was removed, showing it to be but an empty shell. Having launched it, they invited me to enter.

I demurred. I indicated that I could spread my thick coat, which I still carried, on the grass and sleep there.

They would not hear of this. It was evidently unthinkable that any one should sleep anywhere except afloat; I had no choice save to make the best of it.

I laid my coat in the bottom of the shell and crawled in. They promptly shoved me off from shore, and I felt my craft bobbing on the tiny waves caused by their own retiring.

I was afraid to move lest I upset. But I was too tired to worry long over anything. Shortly I fell asleep. Next morning when I awoke the lake was deserted except for my own shell which was moored to the shore.

It was broad daylight; and away in the distance I could hear that marvelous morning hymn, and I realized that my companions had betaken themselves to morning services in the wide fields where I had first seen and heard them.

I was still so tired and sleepy that I lay down for another nap. Some time later I again awoke; this time to find that my official and Barbon had returned. With them were several other Tovarts I could not recognize as having seen before.

TOGETHER we all went to what seemed to be an open-air library, where a number of Tovarts were apparently engaged in the study of books, or what served as books; a sort of box-like device which when manipulated properly, became illuminated on one side revealing a space not unlike a page of a book.

Here too were my books; two or three attendants were engaged in repairing them.

And here I met Carbo who, I was told by many signs and gestures, would teach me how to read and speak the language of the Tovarts.

Carbo proved to be an able teacher, and at the same time an apt student; for I had scarcely begun to learn their language when these strange people decided that some of them at least ought to learn mine, in order to read my books, the numerous pictures in which had fired their imaginations and made them eager to know all about the far-off world from which I had come.

So very soon I was giving my forenoons to learning to read and my afternoons to teaching a class in English.

The selected class, Carbo, Barbon and a dozen others, learned very rapidly, in fact so much more rapidly than I that I was put to shame.

However, I had the advantage inasmuch as their characters were less complicated than ours and their grammatical construction less involved. Then too, the language having to do with the things all about us was therefore easily explained.

So it was not many weeks before we were conversing more or less understandingly, and I was commencing to learn the history and something of the daily lives of my hosts. I will tell their story; not bit by bit as I learned it but rather as it appeared when all the bits were pieced together.

For a great many centuries their ancestors had inhabited a small planet, approximately a thousand miles in diameter. Whether this world is one of the thousand or more

planetoids which our astronomers have discovered and catalogued I was not able to ascertain.

At any rate, this world was very cold and dark, affording only a narrow habitable zone along its equator.

There were various species of animals on land and fishes in the seas.

At first, according to their legends, they had lived semi-aquatic lives, drawing their sustenance largely from the sea; but later they had spread over the land and become in a measure agricultural. From agriculture they naturally progressed to science and industry.

In the course of time they discovered electricity and its uses and soon progressed to an investigation and understanding of light in its various phases and manifestations. This naturally led them to the study of atomic structures; and here they were able to advance one step further than our terrestrial scientists.

They were able to demonstrate what we had only surmised: namely, that all substances are but forms of energy, and all energy is but some form of light.

Having learned to generate power by breaking up of atoms of various substances—particularly hydrogen and oxygen, obtained from decomposing water—they were able to produce light and heat on a large scale.

By applying this light and heat to the surface of their little globe they were enabled gradually to enlarge the habitable area until it embraced nearly the whole surface. Thus given elbow room, so to speak, the inhabitants increased by leaps and bounds until at length they numbered several million.

Meanwhile they had been experimenting with balloons and various lighter-than-air conveyances, and had developed a world-wide air transportation system.

For their balloons they used a non-inflammable natural gas, somewhat akin, I imagine, to our own helium. The structures were built largely of iron, aluminum and gold of which metals they possessed large supplies.

Not only did they conquer their own atmosphere but they finally improved their balloon-like craft until by utilizing the impact force of light rays from the sun they were able to venture out in space miles beyond the most attenuated layer of air.

Then came the fatal event.

A large group of scientists of both sexes ventured out on a scientific research expedition a great many miles further from the home world than any one had previously gone.

One day—so their log book said—they saw their world suddenly expand and fly to pieces in a vast explosion.

Pieces great and small went hurtling through space in all directions while a great cloud formed where the globe had been. Presently even the cloud disintegrated and cleared away, leaving nothing but empty space.

THE space flyer robbed of the controlling gravitational pull of the mother world and driven by the impact of the sun's rays, drifted away into space.

Needless to say the voyagers were thrown into great consternation. For though they were comparatively safe for the moment, their food and other supplies were very limited and they foresaw only privation and ultimate death in the realms of infinite space. But presently they realized that they were being carried in a new direction and before long Earth appeared in the distance.

To them it seemed but a planet of ice and snow—no doubt it was winter time—and they were approaching from the direction of the polar star.

In great fear they discharged their rockets and operated their other gravity-resisting devices to keep them from falling into the earth.

Though they were unable to maintain any stationary position they were able to so far retard the speed of their progress that when they entered the Earth's atmosphere their velocity was not great enough to cause any great heat of friction. But the Earth's atmosphere proved too light to support them and their downward flight was so precipitous that they struck the ground with a terrific shock.

Had it not been that they landed in snow, probably all would have been destroyed. As it was the flying machine was completely wrecked and several of the voyagers were killed.

Happily they had two machines for converting water into power for light and heat, and these were quite uninjured.

With energy born of desperation they set to work to melt their way through the great icecap, using the resultant water as fuel supply to melt still more ice.

As time went on and they burrowed deeper and deeper into the living ice their food supplies were gradually exhausted, although they supplemented them as far as possible with nitrates extracted from the air.

At length they reached solid ground; but in such desperate condition of want that they would have starved to death had they not providentially come upon the cold-storage carcasses of two gigantic prehistoric mastodons, such as hunters and explorers often find frozen in the eternal snows of Siberia.*

Toward these the Tovarts showed no squeamishness. They accepted their find as a special dispensation of divine providence and thus fortified set to work with renewed energy to conquer Nature's fastness.

Excavating on all sides, they soon came upon a lead of fertile soil and presently had enough uncovered to provide a fair garden tract.

They had saved a few seeds from the last remnants of their food, and these they planted and tended with great care, concentrating their mechanical and scientific abilities on producing artificial sunlight for this all-important venture.

This was not entirely a new idea with them, for something approaching it had long been practiced on their home world. So they were not without experience.

Their efforts proved successful; and soon they were raising a substantial supply of vegetables. Of domestic animals they had none; but they did have three very small ornamental fishes, somewhat like our gold fish. These had been a part of the scientific equipment of the original expedition, and had been miraculously preserved.

With characteristic optimism the Tovarts prepared a suitable pond and set to work to propagate and develop these tiny creatures by selective breeding until they finally secured two or three varieties of quite large edible fish.

Since their flying machine had been completely wrecked and their supply of gas lost, they had little hope of ever

*A woman restaurant keeper was recently arrested in Siberia for serving steaks from such an animal on her boarding table.

being able to leave the earth. Moreover, since their native world had been destroyed, they knew of no better world to go to; so they were quite content to stay where they were.

They had, of course, brought with them their religion which they were able to preserve; but their knowledge, the arts and sciences, suffered marked deterioration as is always the case with pioneer settlers.

True, this group had been composed of scientists of rare ability. But for the most part these had been specialists in a few allied lines, and there were many important branches of learning in which no one of the party had been particularly trained. So it was impossible to determine just what proportion of the little world's culture had actually survived.

And so the little colony—perhaps the most unique settlement in all history—had survived and to some extent prospered for more than three centuries before my arrival.

They had enlarged their little crater until it was a mile or more in diameter; had developed surface and subterranean shafts for several miles horizontally and hundreds of feet vertically in order to find and develop mineral deposits and natural resources of all kinds. They had perfected heating plants to provide a comfortable and constant temperature, and lighting effects that scarcely differed perceptibly from sunlight effects.

They had grown from a stranded colony of little more than a score of individuals to a prosperous and cultured community of several thousand.

They gave, it seemed to me, a little too much time to their religion. Each day there were five periods of devotion, each one of a little more than an hour's duration. And the first two days of each month—they divided their years into months of twenty days each—were given over almost exclusively to religious affairs.

However, I decided that these regular hours of inactivity, while they interfered grievously with industry, still had their compensation in so far as they provided restful relaxation and time for thought and meditation; things that in themselves make for progress and efficiency.

CHAPTER V

Condemned!

WHEN I was able to tell them, and they were able to read for themselves, about the real world that lay beyond the ice fields, they evinced a keen and intelligent interest; and some of them expressed a desire to see it all. But no one so far as I know ever suggested the possibility or desirability of pulling up stakes and removing to regions where there was no necessity for manufactured heat and sunshine. In fact, they seemed entirely content to live where they were.

Indeed, their place of residence had many points of advantage. They were entirely protected from storms and weather conditions of all kinds. They had an unfailing supply of water for all purposes in the ice about them. They were free from the wars, commercial rivalries and political intrigues of seemingly more favored communities.

In Barbon I found a staunch friend. He was always interested in my welfare and thoughtful for my comfort.

We held long conferences at his little out-of-town shop. He had chosen this remote spot and built his shop here in order that he might think about and work on his intricate inventions free from the noises and other distractions of the populous district.

He and a number of other Tovarts became greatly interested in my wrecked airplane; and when I expressed a desire to repair and rebuild it they entered into the project with enthusiasm.

From the start we were somewhat handicapped by the lack of suitable materials: aluminum, which they derived from clay, being the only metal of which they possessed an adequate supply.

We were able to secure a little iron from a few relics that had been preserved from the ancient space flyer; and by using all our resources very judiciously, we were able to make gratifying progress.

Barbon was an inventor and designer of some fame and prominence; and his mechanical knowledge proved invaluable in rebuilding and reconditioning the wreck. Since we had no gasoline or petroleum of any sort there could be little hope of operating the motors; but as a mechanical model the plane would still be useful.

I had high hopes that I would be able to interest the community in aviation to such an extent that they would bring their own knowledge of motive power to bear on the subject and that ultimately some device would be worked out to enable me to fly back to my own world.

I believed that their water-disintegrating device could be used as a source of power.

I had a faint recollection of having read somewhere that there was enough energy in a cubic metre, or was it litre, of water to drive a ship across the ocean.

One day Barbon invited me to go with him to see the holy temple; the official seat of the state religion.

For some time I had been curious to see this establishment so I accepted with alacrity.

As we were coming to the place, my companion explained that once a year elaborate ceremonies took place here: and that during the year it was the shrine of worshippers who came to ask some special favor of the deity, whose abode it was supposed to be.

Some divine intuition had directed early priests of the colony to the spot, he said, and they had there built a small temple as nearly as possible a perfect replica of the All-holy temple of their native planet. A deep pit was a part of the development; and in making this excavation they had suddenly liberated the actual voice of the deity; since that day his breath had never ceased to issue from the orifice in great volume.

I thought I detected in Barbon's wonderful voice a note of whimsical irony as he related these things; and I concluded that he might not be as spiritually-minded as the rest of his people.

When we arrived at the temple I found it to be like all the rest of their buildings, a mere skeleton; a great, open-air, pagoda-like building.

Upon approaching the deep pit I heard a deep whistling sound as of the escaping of a large volume of gas.

My companion cautioned me against going too near to the opening because, he explained, none might breathe the breath of the deity and still live on as a mortal being.

He smiled somewhat whimsically as he warned me, but his voice carried conviction.

I did, however, venture close enough to get a whiff of

the so-called breath, and instantly recognized it as ordinary natural gas; the commercial illuminating gas in general use in many parts of the world.

"Have you ever tried to burn this substance?" I asked.

"As one of the chief tenets of our religion it is forbidden to bring fire in any form within the confines of the sacred enclosure." He indicated a low fence surrounding the ground. "But we do know the substance is fatal, because certain classes of animals that have sinned against divine law are executed by being lowered down into the hole.

"We are especially careful about doing or saying anything that the priests may interpret as sacrilege," he explained a bit bitterly.

ON the way home Barbon described in detail the yearly ceremonies which took place at the temple, and explained how the priests were able to interpret the voice of the deity, and how they were selected and supported by the community.

That night and for several days thereafter I thought intensively about that escaping gas. I knew in a general way that gasoline could be extracted from natural illuminating gas, and I saw in this possibility a bare chance of securing fuel for my airplane.

After a somewhat prolonged search I found a detailed account of the process in a book on commercial chemistry in Professor Pillsbury's ideal library.

I dared not reveal my hopes to the Tovarts, however, for fear of being deemed guilty of heretical sacrilege; and now I knew that such a crime was no trifling matter.

At length I decided to tell Barbon what I had in mind, trusting to his friendship to keep my secret and possibly to give me aid.

I approached the subject cautiously.

"Would it be permissible," I asked, "to make any scientific experiments with the divine breath at the temple?

"You know," I added hastily, "I wouldn't want to suggest anything that would in any way impair your faith in your religion, but I have a theory I thought might interest you."

"As for my religion," he told me, "you need have no fear; I am primarily an inventor and a scientist. Real knowledge and superstition have never mixed very freely, but I presume it is up to the followers of each to give and take a little.

"You may speak freely of anything you have in mind, and I will promise to see it from a scientific viewpoint. However, I must warn you that the priests are in power and you must be very careful whom you take into your confidence."

So I told him what I conceived to be the true nature of the "divine breath," and explained its manifold uses. Then I showed him the book describing the extraction of gasoline from natural gas and revealed my hope that I could thus get fuel for my motor.

"It sounds reasonable," he said. "We will see what can be done; but we must observe the utmost secrecy."

The next day he told me that he had learned of a pipe that had been laid to convey the gas to a hospital, to be used in ceremonies at the death of patients dying in the institution. The hospital had long since been moved; but the pipe still lay in the ground. It passed near his shop . . .

By this time my class in English had grown to nearly three score members. One pupil, a young priest, displayed special aptitude. He was soon reading the classics and the Bible with fair understanding.

"I am especially interested in your Bible and other religious works," he told me privately one day. "I find there are many points of similarity between your theology and ours. Tell me. Is this Bible still the basis for divine worship in your country?"

"Yes," I assured him. "It forms the basis for practically all the religions in the more progressive countries.

"But," I qualified, "there are a great many interpretations of certain parts of the book, and a great many of the denominations and sects have beliefs and practices quite different from what you might expect from reading the book."

A few days later he showed me a manuscript.

"This," he explained, "is a translation of the first chapter of the Bible. I want to give it to my superior at the temple. I have brought it to you to read and correct for me, if you will."

I found it to be quite smoothly written and fairly correct in detail.

Next day I returned it with a few suggestions for minor changes and a courteous compliment on the excellence of the work.

The following day a group of officers appeared and haled me before the Horgost. They were very stern and insistent, but would give me no inkling as to why I was wanted.

I found the ruler in his executive offices, looking very grave and surrounded by equally grave priests, all clad in full clerical regalia.

"The charge is," accused the head priest, "that this creature believes and teaches a heresy!

"We of course know, through divine revelation, that we, the Tovarts, are created with all the physical attributes of our divine creator. We are made in his image. Now one can see at a glance what a disparity there is between a normal physique and the altogether undignified form of this inferior being. Yet he and his books are poisoning the minds of our people with the unqualified statement that *his* kind are created in the image of the creator of all things!"

HE read from the translation that I had corrected.

"Did you read and correct this translation?" asked the Horgost. I admitted that I had done so.

"Take him to Borg," commanded the ruler.

I found that Borg was a prison; roofless and walless, except for a metal grating, but nevertheless a prison. And here, with several other prisoners, I was destined to be incarcerated for many days. I was told that my fate would be determined at the time of the annual ceremonies, at which time I would be taken to the temple, and the high priest would interpret the voice of the deity regarding my disposition.

A number of my new acquaintances came to see me from time to time, and in the presence of the guard were allowed to talk about anything except my religion. They told me they were going on with the study of English in order to make the most of whatever of science and cultural knowledge was contained in the collection of books I had brought; but that a committee had been appointed

to ferret out and destroy everything that could be considered of a religious nature.

At first the guard was very attentive; but after a few days when he found that I showed no inclination to talk of the forbidden subject, he paid little attention.

When Barbon called he was especially discreet in his conversation.

"I am working an hour or two every day on the flyer," he said. "I am making some progress in developing a motor fuel which I find is described in one of your books."

The next time he came, seeing that the guard had relaxed his vigilance, he talked more freely; saying that he had actually produced a bucketful of what he felt confident was pure gasoline. At least it burned very explosively, as I had told him gasoline should.

I asked him what the chief priest meant to do with me.

"I may as well tell you," he admitted, "that you haven't a chance in the world, unless we can outwit the old fools. He never has any mercy on anyone. Not a single religious prisoner has escaped death during the eleven years he has been interpreting the divine voice. I would go tonight and murder the scoundrel, if I thought I could escape detection. But don't be discouraged," he finished hopefully. "We will think out some plan."

During the next few weeks I did nothing but think out plans. It still lacked a little more than a month until the yearly temple ceremonies.

At last, with Barbon's help, I worked out a scheme which we hoped might be successful.

One day Barbon told me with much bitterness that the chief priest had appeared before the advisory assembly and suggested that my airplane be removed from the shop where we had rebuilt it, and where he, Barbon, was still working on it. It was agreed that it be placed in the great public museum with a dummy at the controls clothed in my great aviation coat which was also at the shop, and perhaps the rest of my aviator's clothing which I was still wearing.

After the verdict rendered at the temple during the forthcoming annual ceremonies, if it so chanced that I was permitted to survive, he deemed it fitting that I should be provided with improvised garments of local fabrics, in order that my real costume should be preserved for exhibit.

Barbon, who had been present in order to explain the details of his recently perfected inventions, had detected in this move a deliberate plot to rob him of an opportunity to study and experiment with the plane and possibly to demonstrate that the race of which I was a member really possessed something of material value.

Relying on the strength of his own position as a useful inventor and a great economic asset to the community, my friend had risked the displeasure of the powerful divine and had asked that the machine be left in his keeping until he had mastered certain mechanical principles peculiar to its design.

"He is afraid that scientific research may sometime undermine some of his old superstitions, which are the basis of his power over our minds. So he consistently does everything he can to retard and discourage all scientific activities," interpolated Barbon angrily. "As if he didn't know that if it were not for our science, we could not exist here in this hole for a single year.

"I am very discreet; but I think he would have tried to dispose of me long ago had he not been afraid I would fight him with some scientific creation that might prove his undoing."

The fact that the assembly failed to act upon the high priest's recommendation was proof of the high esteem in which Barbon was held; this at least was some small consolation to me.

CHAPTER VI

The Break for Freedom

AT length the day arrived for the eventful ceremonials. Late in the evening I was taken to the temple, to be disposed of as the temple deity should see fit.

I had little doubt as to what the verdict would be, since it was to be delivered through the medium of the high priest; but I did have some faith in my own patent cigarette lighter and a small roll of fiber soaked in gasoline which Barbon had handed me an hour before my departure from the prison.

Though the temple grounds were dark, the open spaces of the structure itself were lighted with a cluster of blue lights high up overhead that cast a weird religious glow over the interior and the little court in front where gaped the ominous mouth of the sacred pit.

The high priest himself, his front resplendent in religious robes and his auxiliary decorated as if for a prize-winning exposition and ensconced on a pulpit-like stand, occupied an exalted position in the front of the temple.

Numerous priests moved slowly about, engaged in various tasks of spiritual significance; while the lay members of the great assembly packed the rest of the temple and overflowed the grounds and massed themselves in solid ranks as far as my eyes could penetrate the darkness on either hand.

An area had been reserved on the right for a group of official dignitaries, and one on the left for me and my guard.

When I was arraigned before him, the priest announced that I had been guilty of believing in and teaching a doctrine which to mortal minds seemed detrimental to the highest spiritual development; but that it was not deemed to be within the province of mortals to judge offenses against the deity. So it had been left to the deity himself to proclaim whether or not I was an offense to his being, and what should be the attitude of his people toward me.

The priest's language was most impressive; and his great voice reverberated in measured intonations that were like the exquisite notes of a dozen musical instruments rolled into one.

It was a sound so melodious, so inspiring, as it soared aloft to the soft blue lights and spread out in the darkness to be echoed back by the assenting murmurs of the vast multitude of the congregation, that it seemed unthinkable that it presaged any evil or injustice to me.

But as he ceased speaking and, gathering up his auxiliary, turned slowly about to face the oracle, the deep, ominous voice from the depths brought my mind back with a rude jerk to the stern reality of my danger.

Very slowly, and with all the pomp and dignity conceivably attainable in a form and gait so incongruous and clumsy, he approached the rim of the open orifice.

Standing on the very brink, he ceremoniously raised

his auxiliary with his decorated, bespangled, but to my eyes ungainly arm, and held it far out over the opening; its swanlike neck falling in a graceful curve and looping up under the folds of the rich robes.

There he stood, like some perverted demon of ignorance, his back with its thick shell turned toward the light, facing out into the darkness, I felt his attitude was not only physical but mental.

Meanwhile the auxiliary cocked an ear in a listening attitude toward the bottom of the pit.

The great congregation held its breath in sympathy with the priest, who must refrain from breathing the breath of the deity.

All was still, save for the hoarse voice that welled up from the throat of the gas vent far below.

I NOTICED that the ribbon and pendant-like trappings of the auxiliary stood straight up and lashed about as though in a swift rush of wind. Since the opening was easily five yards wide, I marveled at the vast quantity of gas that must be escaping to cause such a hurrying draft.

After a long minute the listener turned away. As he moved slowly and grandly back to his station, he was gasping for breath.

On his little table there was a reference book; this the auxiliary picked up and deftly manipulated, holding it so that the dim light would facilitate reading.

It was, I knew, a "translation" and "key" to the pronouncements of the deity; a supposedly inspired work intelligible only to the high priest and two or three of his most learned assistants.

While he read, his one arm performed a rhythmic series of gesticulations that seemed to add appreciably to the solemnity of the occasion.

Presently he seemed satisfied with his interpretation. He turned his attention to his waiting hearers.

"I find the verdict of our deity clear and explicit," he announced. "The substance of the pronouncement is that the further existence of this strangely shaped, half-human prisoner is distasteful to the all-powerful one; and that he must be annihilated forthwith."

For a moment he stood waiting, as if giving time for his message to be understood and considered. Then—"And we who are but the servants of our maker, have no choice but to conform to his wishes. Shall we now proceed to ascertain the divine will as to the manner of the annihilation?"

He paused for an answer. From here and there among the audience came murmurs of assent; but I fancied they were only half-hearted.

"It is well. Our minds are as one," the high priest intoned. He turned again toward the oracle.

My eye wandering a moment from his slow, stately progress, picked out a derrick-like contrivance standing in the gloom some distance beyond the pit. Barbon had told me it was used to lower unfortunate offenders into the depths.

I had little doubt as to how the priest would interpret the deity's next message.

I was sick at heart. But self-preservation is Nature's first law, and I had no intention of tamely submitting to the will of this impressive fakir.

Now that my worst fears had been realised, and there could be no further doubts as to the enemy's intentions or hope of my surviving without open hostilities, I decided that no time should be lost.

Looking stealthily about me, I saw that all eyes, even those of my guard, were on the lone actor.

Stealthily I drew the patent lighter from my pocket, and brought out the saturated roll of fabric.

Meanwhile the priest had progressed to his former station on the brink of the pit, and was holding his auxiliary over it for the "Voice."

I ran to the table, lighting my torch as I ran. Springing on top of the table, waved the flaring torch aloft and shouted boldly:

"He is an impostor! He is deceiving you! Look. Your god will destroy him!"

With a dramatic flourish I hurled the now thoroughly ignited bundle fairly into the mouth of the gaping chasm.

Instantly there was a blinding flash, followed by a terrific explosion.

I was thrown violently from the table and landed in a heap among the civil officers' delegation. A great flare of flame, several times higher than the temple was roaring skyward and illuminating all about with a glowing red light.

THE high priest lay on the flagstone beside the hurrying flames, where he had toppled over backward.

His face and robes were charred and black, and his shell was the color of smoke.

There was no sign of his auxiliary; but the major portion of its long, slim neck stretched out on the ground.

A great cry that was like the crescendo of some masterly musical composition; a note of horror, surprise and supplication all in one, went up from the crowd. Auxiliaries were held aloft as high as arms could reach, in order to see better what was happening at the pit.

One long, inclusive look was enough for me. I slid down from the platform and ran, apparently unnoticed, through the crowd and out into a patch of shrubbery in the direction of Barbon's shop. Except for the shadows of the bushes all was as light as day.

Without a backward look I ran at top speed and arrived at Barbon's shop in an exhausted condition.

My friend was there, waiting for me. He had seen the flare of the column of fire at the temple, and knew that so far at least my plan had worked. His telephone was before him.

"You must make a quick getaway," he said with evident anxiety, although his marvelous voice was as melodious and measured as ever.

"They are already searching for you. Messages are being sent out for every one to be on the lookout for you, and they are in such a state of excitement that I suspect you would be given short shift if they once find you. I think the plane is all ready. But I didn't dare start it today, for fear of attracting attention."

"But," I expostulated, "you should not be here! If we start the motor they will be here in a few minutes, and they will know you have helped me."

"I shall say that you overcame me by force and took the plane," Barbon argued with bland composure. "I shall be lying stunned beside my bench. Make haste! Make haste!"

(*Continued on page 87*)

THE POWER SATELLITE

By **R. F. Starzl**

(Illustration by Paul)

Three bodies struck the Earthman and bore him down. They dragged him across the jagged edged rocks until a fold of his suit caught.

THE POWER SATELLITE

by the author of "The Metal Moon," "Twentieth Century Medusa," etc.

ANTON WAITE, special diplomatic representative of the Terrestrial government, felt the subtle menace of it; that ghastly danger which threatened the peace of the entire solar system. He had arrived on the controversial little satellite of Goddard,* Neptune's sole moon, on a supply ship only a few hours before. Now, in the huge vaulted underground chamber where a thousand persons—a fifth of the satellite's entire population—dined leisurely, he looked around curiously.

At his secluded little table, screened by one of the huge supporting pillars, Waite watched the scene, in many respects a cross-section of the interplanetary life of that advanced day. He saw Terrestrials, brawny, efficient engineers; mine foremen, technical experts. Although their clothing, in these rest hours, was of excellent, iridescent fiber, it suggested in cut the unionalls of their working hours. There were also Martians—descendents of Earth's colonies on the red planet—hawk-faced, usually handsome, with dark, curled hair, pink skin, in their native clothing that suggested military uniforms. And a sprinkling of Venusians, grave, pale as alabaster, the men in long, flowing robes. Only the women of all three racial branches were similarly gowned, wearing long, brightly colored drapery, and flitting about like animated jewels.

Music from a concealed source filled the hall, and a play of living colors over the walls, the ceiling, and the white stone floor completed the harmony.

Waite's rugged, young, and not unhandsome face was grave as he thought that only in men's hearts there was no harmony, but rankling suspicion. He was a splendid specimen of a Terrestrial man, of slightly more than average stature. Even in repose, and more so when he moved, he suggested leashed force. He would need all he had, he thought, as he considered his difficult and dangerous mission. At this moment he was conscious of a faint perfume, and a voice back of his chair spoke:-

"Please! Pretend you know me!"

With a start Waite looked up at the girl. She was, he saw, a Martian of rare beauty. Her features, with all their imperiousness, were small and feminine. Like all Martians, she was a little smaller than a Terrestrial of her sex. The soft, rich material of her clothing clung to a body that was slim and yet exquisitely rounded. Her pink arms and legs were partially bared, and her feet were thrust into tiny slippers that concealed only her toes, revealing high-arched insteps. A singer, or dancer, Waite decided, come to this remote port under the inducement of a high salary.

"Call me Glyda," the girl continued breathlessly, sitting down on a stool which she drew to the table. "Talk to me. I'm in a ver' bad mess."

R. F. STARZL

THE lack of a super-powerful fuel is perhaps the greatest obstacle to space travel today. It would be rather ironic therefore, if after centuries of trying to find that fuel on earth, the first men to brave interplanetary space would find just what they want on another world.

And such a probability exists. For on other worlds the differing conditions may have transformed the elements in a manner to produce chemical compounds unknown on earth.

If such an invaluable thing as Mr. Starzl's "catalyte" were found, it would revolutionize our life; but on the other hand it would create a mad series of wars, schemes, plots and chicanery to gain the coveted substance.

In this story, Mr. Starzl takes us to far-off Neptune's moon where in an exciting story we see the grim drama for power played out to its very finish.

"Glad to do that," Waite grinned. "Shall I order some Venus pears for you?"

"Please!" And Waite gave the order through the table microphone. In a moment the fruit appeared through an opening in the table's center, and the girl began to eat.

Waite watched her speculatively. He wondered if she were the spy of some hostile power. If so, she had lost no time. Her approach, though not exactly new, was certainly effective.

Setting small, white teeth into the fruit, Glyda smiled. Her eyes, beneath their long lashes, were a brilliant, amethystine green. Her head was small, well shaped, and her dark, curled hair was held in place by an inexpensive fillet of gold, long since artificially produced by the atomic process and therefore cheap. He decided that he might like this girl even if she were a spy. Waite had walked perilous paths before, and had unmasked many a pitfall. But never had an adversary been so attractive so he smiled at her.

She responded, but there was a trace of pathos in that response and the look in her eyes was that of a hunted creature.

"You have just come on the supply ship from Earth?" she asked.

"How do you know that?"

"I heard *him* say so. Snaide."

"Snaide?"

"The Martian Authorized Receiver. I hate him!"

"Snaide told you about me: You hate Snaide? That doesn't make much sense."

"It does. Don't look now. I'll tell you where he is: Under the second sun disc. Take this."

*Named after the famous American pioneer of rocket ships. Ancient astronomical works contemporary with Goddard refer to this body as Triton.

From a small pouch at her girdle she took a then familiar toy—a curved quartz rod with lenticular ends. By looking into one of the ends, due to a peculiar property of quartz, one could observe what was going on behind one's back. Waite held the fragile bit of glass to his eye and scanned the room around him as with a periscope. He located Snaide at once, watched him with interest.

The Martian was rather typical of the ruling class of that planet when they begin to go to seed. His skin was red, verging on purple instead of a healthy pink. His body was gross, forced into a tunic of military cut which was meant for a much slimmer man. His thick black hair was cut short, standing up stiffly. His large, hooked nose, deep-set eyes, and full lower lip all betrayed unscrupulousness, lust for power, impatience with opposition. And now Snaide was obviously in a black mood.

"He seems pretty sore about something," Waite remarked, handing back the quartz. "So he's the Authorized Receiver?"

"Yes, and I hate him!" Glyda declared vehemently. "He—well—he wants me. Ever since—they brought me here, he has wanted me and now he says he will wait no longer!"

WATCHING the flame and the shadows of fear in her eyes, Waite thought she was either a very good actress or she was telling the truth.

"But, Miss—uh—Glyda! You could appeal to the Factor. This may be a bit off civilized trails, but it's subject to law—the Interplanetary Statutes. Didn't you know that?"

Again that hunted look.

"Yes, but—I will have to trust you! You will help me if I tell you everything. Snaide seems disturbed by your coming. A man whom Snaide fears is one who could help me. It's this—"

"Stop!" Waite snapped. "Don't say a word. There's a photobeam on you!"

Glyda's fingers fluttered to her throat.

"Say nothing. Take your hands down. I want to see."

There it was. On the slender column of her neck was a tiny speck of light, almost too small to be noticed. But both of them knew that it was the termination of a tiny beam transmitted by some spy in that room, and that a telescope, with a photoelectric cell at its focus, was directed on that spot of light. The vibrations of Glyda's throat, quivering over that light beam, would be easily heard by the eavesdroppers.

"We're in for it, Glyda, if they heard much. We can't talk here. Come. Let's get out."

"No, wait! Oh, he's coming! Have you ever been on Mars? Say you met me at the Montessor Theater!"

Snaide was striding across the large open space at the center of the hall, paying scant attention to the deferential greetings of acquaintances. He was coming toward them. Waite groaned inwardly. Knowing the Martian temperament, he expected a fight. Public attention would be directed to him, and he would immediately incur the enmity of a man who could be useful to him.

But the Martian had evidently decided to avoid trouble. He bowed civilly, acknowledging the introduction.

"Glyda told me, Mister Waite, that she knew you on Mars. I heard that you had just arrived. That catalyte matter, I presume?"

Waite was taken aback. He did not miss the sharp scrutiny that accompanied Snaide's formal politeness, nor the underlying note of triumph. It was natural that his arrival should be noted, but his purpose! That was disconcerting.

"You wonder how I know that?" The Martian's lips drew back in a grin. "My dear sir, what else would you be here for? The man who negotiated the Mercurian gum deal, and a dozen other coups! I trust with your aid we shall soon solve the mystery. And what a charming companion!" He laid a soft, red hand on Glyda's arm, and she shrank perceptibly, though she smiled.

"I confess, sir, I envy you," Snaide went on with elaborate affability. "Women are not ordinarily indifferent to me, but—"

He looked rueful, bowed, and turned to stride away. Glyda shivered.

"I'm afraid. Let's go outside. You must do something for me. After that, ask anything of me. But you must help. Will you?"

Looking into her face, Waite did something he would have found hard to justify.

"I will help you. Come outside."

Like all human habitations on Goddard, the great hall had been cut in the solid rock far beneath the surface of the satellite. For, although Goddard has a thin atmosphere, it is so deficient in oxygen that no human being could live in it. The little interplanetary mining colony lived, therefore, in a honeycomb-like structure, far underground, and the atmosphere was artificially maintained.

Waite and the girl found themselves in one of the main galleries, which were wide and well-lighted.

"Where can we talk?"

"Not here," Glyda murmured. "This way."

She led him a distance of several hundred yards, then up a lateral gallery. Here there were fewer people. They turned again, and it seemed as if they had suddenly been transported into some Terrestrial park at twilight.

It was a real park, deep down in the bowels of Goddard, a huge, vaulted room in which familiar Terrestrial vegetation grew under favorable conditions. The great actinic lights had been turned off, and a faint perfume of soil and growing flowers filled the air.

Glyda led the way to a bench, and Waite sat down beside her. As he did so several figures entered the park. Lovers, perhaps? Just then it was credible.

But a moment later there was a crunching of feet on gravel close by, and some instinct made Waite whirl and leap to one side.

It was too late. Shadows were all around them. Glyda cried out and half rose to her feet. Something thudded against Waite's head. He was in the midst of a swirl of figures, of fighting, panting men.

Waite felt for the ray-tube in its clip at his belt, but it was gone.

"That woman!" he exclaimed angrily to himself as he struggled against unconsciousness. "What a fool—to fall for that old trick!" He landed a blow and was rewarded by a grunt of pain. His elbows thumped solidly against something.

"Let him have it! Don't let him call!" came a snarl at his ear. A heavy blow almost paralyzed his shoulder.

It had barely missed his head. Waite was getting tired fast, and his head never had entirely cleared. In the dim light he could not see his attackers, nor how many of them there were.

A blinding flood of pain as something struck his head again, and Waite felt his knees give under him.

"Finish him quick!" howled the unknown. And Waite, still fighting automatically, was nearly past caring.

Then it seemed to him that the fury of conflict redoubled, and lying neglected on the ground he was no longer conscious of blows raining upon him. At last blackness engulfed him, and he knew nothing at all.

WHEN Waite returned to consciousness and suffering he saw that he was in a small, oblong office, hewn, like everything else in the city of Goddard, out of solid rock. The walls were hung with astronomical charts and tables. Waite was lying on a cot, and from where he lay he could see, still blurred and uncertain, the green, red and white comet brassard of the I.F.P., the Interplanetary Flying Police. With a groan of gratitude and pain he sank back and closed his eyes.

His groan aroused someone. There were heavy footsteps that came from an adjoining room and stopped beside Waite's bed.

"Be glad you can groan!" said a hearty voice with a laugh in it. "That bop on the head nearly split your skull."

Waite looked for the speaker. Slowly the blurry outlines of a genial full face came into the field of vision. A pleasant face under a crop of stiff, sandy hair, topped by a little round skullcap of woven metal—the uniform headgear of the I.F.P. The officer was dressed in regular uniform, except that he did not have on the heavy service belt with its load of instruments and weapons.

Waite managed a wry grin.

"Knock me again, fellow!" he said, his tongue thick and clumsy in his mouth. "I got taken in by an old and easy trick. If you hadn't come along I'd be just a pile of dust in some refuse burner. It was you, wasn't it? How many of you were there?"

"Just me and Belts." He shouted. "Hey, Belts, drop them things and come in here for a minute!"

Belts came in a moment. He was smaller, slighter than his companion, whose name was Hackett. He had dark hair and a thin, studious face. In one sunburnt hand he was holding the tiny coils and lenses out of a ray-tube which he had been checking over. He smiled warmly.

"Glad to see you coming around, Mister Waite," he said. "It was just luck that we came along during the fight. Only sorry we couldn't save the girl."

"Save the girl? What d'ye mean?"

"Why," Belts said, "they weren't hurting the girl, just holding her. So Hackett and I piled into the fight around you. We used our knobbed clubs, and soon cleared a little room. Then the others grabbed the girl and beat it.

Relief, gratitude, and then doubt assailed Waite. He had assumed that Glyda had acted as decoy for Snaide, or for some other plotters who did not care to have the catalyte matter investigated. Waite was mildly astonished that it should matter to him whether or not Glyda were absolved from treachery. But immediately a new fear tortured him. Glyda was in the hands of his enemies. Her plight might be serious. With stakes of interplanetary importance depending on his catalyte mission, Waite could not deviate from his duty in order to search for the girl.

And at the same time he did not dare to call on the local authorities for help. They might be aligned with his enemies. There was one crumb of encouragement. If Snaide had been concerned in that attack, then her position was not entirely hopeless. Snaide would protect her against everyone but himself.

Waite groaned again as he sat up and dropped his feet to the floor.

"You men from the Earth headquarters?" he asked.

"From Denver," Hackett replied. "You know, of course, that the I.F.P. is really divided into three branches that cooperate? But ordinarily the men from each planet always work together."

"And lucky for me!" Waite exclaimed, gingerly feeling his scalp. "And now I wonder if I can count on a little help from you. Unofficially, of course. And I'm going to make a few things clear to you. I don't much like the idea of playing a lone hand when all my opponents are tipped off in advance. Now, tell me this, do you know what I'm here for?"

"Well," Hackett said uncertainly, "I heard down at the mines that you were sent here to check up on the catalyte shortage."

Waite grimaced.

"And they told me at Cape Town that my investigation must be made in the greatest secrecy!" He limped to the table and picked up a tiny cylinder out of Belts' ray-tube, that the latter had laid down. Unscrewing the cap he poured out a few grains of grayish powder, into the palm of one hand. It felt warm, as though possessed of a life of its own.

"Catalyte!" he exclaimed, fixing his eyes on the little heap in his palm. "The very life of modern civilization. Without it no rocket ship could ply the space lanes; no ray weapon could function. The stuff that changes iron into platinum, or lead into gold! Look at it, men! Atoms that peel electrons as easily as you take off your undershirt. The race that has the catalyte has power; the one that has none is at the other's mercy!"

Carefully he put the potent element back into its capsule, which was an effective insulator and capable of protecting the user against burns.

"We're anxious to help," Belts said quietly.

"We'll have to work very smoothly," Waite continued. "Naturally all three of the owning planets are very touchy about this. Goddard, this one mine, is the solar system's only source of catalyte. According to the treaty, each planet is entitled to an equal share. Anything smacking of interference—anything like the intervention of force, would mean war!

"Yet, the fact remains that the output of catalyte has dropped, though as much ore as ever is delivered to the refinery. Someone is getting that missing catalyte! It isn't Earth. Could it be Mars? Could it be Venus? Each suspects the other, and all are only awaiting some suspicious movement, some tactless word. The human race is still pretty savage, men. Unless we can find out who's getting that catalyte, and return it for an honest division, there'll be war!"

The other two nodded grimly.

"Yes," contributed Belts. "And there's another angle. Somebody wants you to fail! Now you lie down, Mister Waite, and get some sleep. We'll see to it nobody slips a knife into you, and when you're ready to start we'll sort of keep an eye on you."

CHAPTER II

Into the Fire

THE rare and indispensable element, catalyte, had been created millions of years before the first faint premonition of life stirred the primeval Terrestrial ooze. In fact, Earth itself was still only a swirl of vapor. Flaming gases were thrown off by the sun, and one vortex formed the beginning of what was later the planet Neptune. Whirling, that incandescent mass threw off a part of itself, and in the following ages, that became the satellite. And when that satellite condensed into a sphere of solid matter some 3,000 miles in diameter, there was in the dull shell a fabulously rich heart of catalyte, more powerful than even radium in breaking down the atomic structure of elements.

Upon its discovery it had immediately replaced the dwindling supply of radium for that purpose. By miracles of diplomacy an interplanetary treaty had been effected, providing that the only known vein be jointly worked by a commission representing Earth and its colonies, Mars and Venus.

After two Terrestrial days (standard throughout the solar system except on Mars) Waite had recovered sufficiently from his beating to be able to leave his newfound friends. Because secrecy was futile, he determined to present himself immediately at the mine.

As he came into this closely-guarded zone he passed through several lines of guards, and finally was asked to wait before a heavily-barred door. This, he knew, gave access to the impregnable citadel deep within the rocky shell of Goddard. The surface outcroppings had long ago been covered over with a thick and adamantine shell of concrete, and there was now only one way to either the honeycombed body of the ore, the refinery where the pure catalyte was extracted, or the adjoining weighing room where the pure product was delivered, to be jealously divided up among the representatives of the three planets.

"Get up and stand before the visor," a disembodied voice commanded.

Waite did so, held up his credentials to the whirring scanning disc.

"All right, come on," said the voice, and the great bolts moved back silently. The heavy door opened, closing again very promptly as soon as Waite had passed through.

Factor Lyle himself awaited the Earthman. The factor himself was a Terrestrial, though he had spent many years on Goddard. He was tall and lanky. His thick, white hair fell away from hollowed temples. The long strain under which he had labored was telling on him. He heard Waite's story, not commenting until it was finished.

"That's just another proof of something pretty deep and serious back of it all," he said. "Some power is trying to precipitate a crisis. Anything for a pretext—that's historical—to seize the mine. And the power that has control of the catalyte has control of the color system!"

"And whom," Waite asked, looking at the older man levely, "do you suspect?"

Lyle laughed, then sighed.

"It's dangerous to jump at conclusions. It isn't hard to find a suspect. In fact, it's too easy. It's too clumsy to be true. You know, of course, whom I have in mind?"

"Snaide?" Waite drawled.

Lyle lifted his grizzled eyebrows.

"Pretty obvious, eh? If the Martian government wanted to start trouble, wouldn't it send somebody a little smoother than Snaide? His nasty insinuations would tend to set both Earth and Venus against his own world. What will it get them?"

"Do you think Snaide knows where the missing catalyte could be?"

"He couldn't have stolen it himself. It's handed over from the refinery in plain sight of the three world representatives. Each one takes his daily share and locks it into a private vault."

"It seems to me the right place to look for the leak is in the refinery, then. Who is the chemist in charge?"

"A Martian named Graxon. But the old fellow is absolutely reliable; he's been in the service for years. Besides—and that lets Graxon out—he delivers full weight for division. The catalyte is locked in the vaults. And when the vaults are opened it has shrunk by one-third, everyone's share alike! Yet the vaults are absolutely undamaged, the timelocks unchanged. It's uncanny. It suggests fourth-dimensional didoes. Absurd, eh?"

"Let's have a look," Waite said.

A few minutes later, in the presence of the three Authorized Receivers, as required by law, Lyle unlocked the thick metal door to let Waite into the refinery. Snaide was offensively polite. The Terrestrial Receiver was a man named Transon, middle-aged, dignified and worried. The man from Venus was tall, pale and calm, with a pointed gray beard. His lean body was draped in a grey robe. He said nothing, but his quiet eyes were ever on the alert.

Graxon came forward. The chemist was nearing sixty, although he was still sturdy. His hair was grey and abundant; his skin, for a Martian, usually light. Large, dark and anxious eyes looked out from under bushy brown brows.

"Waite, meet Graxon," Lyle said. "Graxon's a virtual prisoner, under contract not to leave this room for ten years, and he has another year to go. Graxon, Waite has come from Earth to see if he can find out where the catalyte is going. He'll appreciate any help you can give him."

It seemed to Waite that the chemist's deep-set eyes wavered. Then they became expressionless.

"I live here, sleep here, eat here. I get the concentrate, extract the catalyte, deliver it to these gentlemen. I don't know anything." Graxon's voice was vibrant, yet curiously veiled. To Waite his attitude was one of anxious defiance. What had this man to conceal? What had he to fear?

"How long have you been here?"

"Nine Terrestrial years. I have not been outside since I first came. My work, with automatic machinery, is easy. I have no visitors. I do my work." His mouth closed firmly, as if to shut off further speech.

Waite prowled around the big room. It had been hewn out of the solid rock, and was filled with a wilderness of machinery and chemical equipment, the use of which Waite understood only vaguely. All openings, such as ventilators and chutes through which concentrates were dumped into the bins, were provided with complicated safeguards to prevent smuggling out of catalyte. Besides —always it came back to the incontrovertible fact—Graxon delivered the proper amount of catalyte. It disappeared after that.

THE others were already turning to go, and Waite was about to follow them when he was stopped by an unexpected sound.

It was nothing but the muffled tapping of metal on metal, but it made him turn suddenly, every sense alert. For it had seemed to him, for a moment, that someone was tapping out a code somewhere. The next instant an automatic control snapped, and a huge machine began triturating a fresh batch, drowning out the other sound. Graxon seemed not to have heard, but to Waite, watching him covertly, it seemed that the old Martian's breathing was faster than normal. Graxon stood where he had been until they bolted the great door on him in his voluntary exile.

That day's production was not to be delivered for several hours more, and as the others showed no disposition to leave, Waite stayed with them in the long, plain waiting room. As he listened to their conversation he sought for some hint, some key to plots and counterplots that were shaping the destinies of the human race. Behind these polite conversations were threats of war, of wholesale destruction, of whole planets blasted by death.

But more and more Waite found his thoughts straying to Glyda, the beautiful Martian girl. Had she betrayed him? It was quite possible that Snaide, in murderous jealousy, had caused them to be trailed to the garden. And if jealousy had not been the motive, then there was the matter of the catalyte. Perhaps even Snaide knew nothing of that attack. There were strange and powerful cross-currents of intrigue at work on Goddard.

Snaide, stiff, military, with hooded eyes, discussed polite inanities. Watching him, Waite dismissed one question after another until one was left, "What had happened to Glyda?"

And then Snaide, as if reading the younger man's thoughts, asked casually:

"And how did you get along with my compatriot, your old friend?" He accentuated the words subtly, as with secret amusement.

"I did not get to talk long with her. Someone, with reasons unknown to me, tried to kill me. Who do you suppose it was?"

Snaide smiled maliciously.

"Rival, probably. One or more of her lovers. Her sort, you know—must be on the watch for those things."

Waite felt himself becoming angry. He felt the blood rising in his face. Glyda was nothing to him, he told himself savagely. With an effort he controlled his voice. He said clearly:

"From what she told *me*, you aren't in a position to say much about her personal habits, Snaide. So, may I suggest that a gentleman would hardly be so free with his mouth?"

Nothing that Waite could have said would have infuriated the Martian more. He was of the sort, not unknown on Earth, who bolster up their waning prowess with women with sly hints and innuendos. Waite's blunt statement of his failure with Glyda was like a blow. Snaide's fist lashed out. But Waite, with certain pleasurable satisfaction, stepped aside. His return blow caught Snaide's prominent nose, smashing it, and Snaide tumbled ignominiously to the floor. He did not attempt to rise again, but the baleful glare of his eyes spoke death.

Happier than he had been since he met Glyda, Waite left the treasure citadel. One man more or less with a desire to kill him was nothing to worry about, and he was still thinking about the muffled clanking he had heard in the laboratory. A clanking such as might be transmitted by a pipe for a long distance through a rock. A pipe that could be used to discharge the liquid catalyte concentrate into some secret cavern after refining to small bulk. What if that precious element did seem to disappear from the vaults? Waite knew that the most obvious things are sometimes the last to be discovered, and he was sure that, once he found the key, the whole mystery would resolve into the utmost simplicity.

The rest of that day Waite spent prowling around the mine. It was so thoroughly policed that it seemed impossible for anyone to take any concentrate out of it, even if Graxon managed to return some of the refined product to some confederate. The next day, Waite determined, would be spent on the surface.

That evening, tired but somewhat refreshed by a bath, Waite again entered the great dining hall. Although he did not wish to admit it to himself, he knew he was hoping to get a glimpse at the vivid little Martian girl whom he could not keep out of his thoughts.

When he did see her the brilliant place became, for him, dark and cheerless. She was sitting at a table with Snaide, and the latter was leaning toward her in a very proprietary way. Both of them caught sight of the Terrestrial. Snaide glared malignant triumph. But Glyda's brilliant green eyes passed over Waite indifferently. She turned and smiled at Snaide.

It was a grimmer, quieter Anton Waite who donned the sausage-like space suit the next morning in the municipal airlock. He felt at his belt to make sure the borrowed ray-tube was in place, turned on the oxygen and stopped before a piece of apparatus, an ancient device.

It was nothing but a glass jar through the neck of which projected a rod with a round metal ball at the end. At the bottom end of the rod, inside the jar, were two limp pieces of goldleaf, hanging together—an electroscope, one of the few scientific instruments that had survived unchanged through the ages. Waite tested it, to make sure that the protective sheathing of his ray-tube would prevent its tiny storage charge from affecting the instrument. Reversing the airlock valves, he walked out upon the surface of Goddard.

IT was a weird landscape, judged by Terrestrial standards, utterly bare, a scene of complete desolation on every side. The far distant sun was small, yellow, weak. Though it was then at its zenith, its light was flat, unreal. Much more impressive was Neptune, an enormous, nearly featureless moon glowing with soft reflected light, then just half over the horizon. So enormous was it that it

looked more like a gigantic domed mountain not far away, than another heavenly body.

The surface of Goddard was scoriac. No changes of weather had softened its harsh outlines. A succession of low, choppy cliffs stretched away on all sides, their bases white with what looked like snowdrifts. In reality it was solidified carbon dioxide, so great was the cold. The airlock itself stood on a low, rounded mound about 400 feet in diameter, the vast concrete seal that covered the entire mine. High overhead on a spidery tower burned an intense white light, the marker for incoming space ships. A half dozen ships, upright cylinders with conical tips, stood ranged nearby, each in its launching pit. They were deserted. Men did not ordinarily court the intense cold, the suffocating atmosphere.

Methodically, Waite took a cloth and began to rub a small object that was wrapped in it. With this he touched the metal ball of the electroscope. When the instrument was charged, the bits of goldleaf strained away from each other. Holding this carefully upright, Waite began a slow, systematic quartering process over the surrounding area comprising a circle with a half mile radius.

After four hours he was bathed in sweat, despite Goddard's relatively slight gravity. The electroscope had shown no marked loss of charge.

And then, suddenly, it showed a very rapid leaking off of its charge, the leaves falling together every few minutes, a sure sign of catalyte nearby!

When he finally found the crevice he was looking for, he realized that he might have passed it a dozen times, so well was it hidden. But when a minute later he found a footprint in a bank of carbon dioxide snow he knew he had found a thieves' lair.

He set the electroscope down and, ray-tube ready, crept slowly down the steep slope of a rough path that led deep under the surface. He moved gingerly, for if a jagged rock should tear the space suit, death by asphyxiation would be inevitable.

Soon he had to feel his way in complete darkness. And still it led downward. Once he tripped over a wire and waited fearfully. But nothing happened, and he went on.

He had about decided that he was lost when his questing fingers came upon a metal door. It was a typical spacelock, circular, with a handwheel that could be operated from either inside or outside. Waite turned the wheel hurriedly, to his joy it was not locked. If any of the conspirators were inside they might think he was one of their number, and could be surprised.

In a moment he was inside the cramped space within the lock. And then he was inside. Everything was in pitchy darkness. There was no sound in the helmet microphones. Ray-tube ready, Waite crept forward, feeling for a light switch.

Suddenly a flexible metal rope came over his head, pinning his arms to his side. His unwieldy suit further hindered his movements, and although Waite fought with inspired fury, he was soon lying helplessly on the floor, with the weight of three or four men holding him down. A light disc on the ceiling glowed white, and someone roughly pulled Waite's helmet off. He was jerked to his feet.

"It's that damned Earthman!" an exulting voice exclaimed. Waite knew it well. It was Snaide's.

"Hardly expected such luck!" Snaide gloated. "Dozens of men have tramped around overhead, and the one we want finally drops in! Who says luck isn't with me? Luck is a lady, and ladies like me."

Waite, looking at the Martian's fierce, ugly face, with its broken hawknose, smiled, despite his predicament. Snaide, still of injured vanity, snarled with hate.

"Before you die, look!"

He grasped Waite by the shoulder, whirling him roughly around.

Standing a few feet away, her clear green eyes inscrutable, was Glyda. She was dressed in a space suit, helmet off.

Waite's open countenance twisted in a sardonic smile. He suppressed an absurd desire to bow mockingly. Burning words came to his mind, but did not pass his lips. At last he did say, gently:

"At least this, Glyda, was not your treachery."

To his amazement, tears sprang into her eyes. She turned away.

Beside Snaide there were two other men, Martians. One was horribly scarred by a ray burn about the face; the other was handsome, possessing the hard gloss that goes with living both richly and dangerously. All three were draped in the baggy fabrics of their deflated space suits, their helmets hanging at their backs.

Triumph and amusement had left Snaide, and he looked at Waite speculatively.

"How'll we get rid of him, men?" he asked.

"Burn him!" the scarfaced one returned promptly, his tube already in his hand.

But Snaide vetoed that.

"Won't do. He's got to die by accident. His body has to be found. We don't want an I. F. P. inquiry."

"Tie him up till he freezes," the sleek Martian suggested.

"Won't do either. This bolt is pretty able to take care of himself. He wouldn't freeze by accident." He pondered. "Here's what. We take him out, rip his suit. Make it look as if he slipped on a rock, tore it. Not bad?"

"Well," sneered the sleek one. "If he's so good, would he slip?"

"We'll find a likely place. Wurtz, you stay here and guard the prisoner. Create, you come with me."

CHAPTER III

Waite's Discovery

HE of the scars tied a couple of more precautionary knots to hold their prisoner safe, while Snaide and the other man slipped on their helmets. Still he was not quite easy, keeping a vigilant eye on Waite as his compatriots passed into the airlock to the accompaniment of hissing valves.

Glyda came forward again. She looked at the trussed prisoner coldly.

"Wurtz, those knots aren't tight enough. Better pull them up if you want to keep out of trouble."

"Wurtz did his, turning his back to her. As he did so she knocked him unconscious with a wrench.

"Quick!" she panted, working at the rope. "You might have a chance. Tie him up."

All this was the work of only a minute. Then, with

Wurtz gagged and helpless on the floor, they faced each other. Glyda smiled wistfully. Her remarkable green eyes were again suffused with tears. Her voice, which ordinarily was sonorous and sweet, trembled.

"We are both going to die soon, Mister Waite, but we may die fighting. Must you despise me to the end?"

"Hardly!" he floundered. "I know that circumstances—something—has put you in a bad light that you don't deserve. What is back of all this?" He approached her. His thin metallic gauntlets touched hers, but through the rasp of metal he felt the thrill of that contact. Instinctively he put his arm around her, drawing the stiff material of her space suit in to her waist. A wave of tenderness came over him.

"Never mind telling me, Glyda. All I want to know—I realize you mean much to me."

She smiled gallantly.

"But I must tell you. We will both be dead when Snaide sees him." She touched the prostrate guard with her toe. Tell me this first: Am I what men desire?"

"You're all that any man could desire," Waite declared impulsively. "With you I would want nothing else!"

She smiled again, shaking her head.

"In that respect, then, you agree with our Planetary Secretary of Finance."

"Mesuen?" Waite, like every other Terrestrial, knew of Mesuen, that figure of arrogant and almost legendary power on Mars. He was known to be the real government of that planet, directing the policies of elected officers, perennially reappointed by all parties. He had talked over an interplanetary photoaudio hookup. A man of indeterminate age, smooth, slender, paler than most Martians, with crafty, hooded eyes. A connoisseur of the arts, and of women.

"Mesuen?" Waite asked. "What about him?"

"He saw me dance. He sent me an enormous basket of Venus orchids. The other girls were wild with envy over the honor—and the implication. I knew what was coming. It did. A few days later I received notice from the Eugenics commission to report to Government laboratory. They have power to conscript, you know, for experimental purposes. The department of biology is authorized by law to do that."

Waite nodded. The object, he had heard, was to improve the race.

"I knew," Glyda continued bitterly, "what the bureau would do. I wouldn't stay long in the laboratories. Instead, I'd be immediately referred to Mesuen, just another one of a long succession of 'experiments.'"

Nevertheless she spoke without heat. That infamous prostitution of an originally laudable institution was an old story throughout the inner orbits.

"I tried to escape, but the government agents soon got on my trail. I dared not try for the interplanetary ports, but fled from city to city. At last one of the agents caught up with me.

"To my joy, he told me that he also was working for a private organization that was not in sympathy with the government. He said he would help me get away. I was touched by his humanity. I said I would never forget what they were doing for me. They never let me forget!

"This man obtained a forged passport for me, and passage on a catalyte service ship as a cook. You smile! But I can cook!

"Once I was here this man took me to Snaide, and then I learned the reason for their kindness! Mister Waite, did you look closely at the Martian they call Graxon?"

"Graxon? Yes. What did he have to do with the plot?"

"Graxon is my father. My mother died when I was a little girl. My father's life was one sacrifice after another for my career. He took the Goddard post, which few skilled chemists will accept, only because the money would put me through the best schools. I had not hoped to see him for another year, and I was overjoyed to learn that my mysterious friends were taking me to Goddard. I hoped I would have an even chance to visit my father. How simple I was not to realize I was putting myself and him in their power!

"We were soon to learn the price of my safety. A criminal syndicate, of which Snaide is a member, plans to set up an outlaw government and to fortify Eros. To do this successfully requires a big supply of catalyte, and this is the only place where it can be had."

Waite listened intently as the girl recited her amazing tale of a colossal interplanetary cabal. He himself had direct proof of its actuality. But one point was not clear.

"You said they forced your father to help them. But I came to the conclusion that your father must be innocent, despite some suspicious circumstances, because he delivered a full consignment of catalyte every day. It disappears *after* division."

"No, not real catalyte."

A LIGHT slowly dawned upon the Terrestrial. He was familiar, as the human race had already been in the dark ages of the Twentieth century, with the fact that radium, which was in some respects similar to the far more active catalyte, gave off emanations, and he glimpsed a hint of the truth.* Glyda answered his unspoken question:

"Simple, isn't it? The catalyte emanation is a single, very volatile gas, Catalyte A; so my father explained it to me. He found a way of solidifying this gas for a matter of a few hours. Then it again becomes gaseous and escapes or enters into compounds. Understand? Only he knew how to solidify the gas. He extracted it from its union with the ores, solidified it, weighed it in with the real catalyte. It looks pretty much like the real catalyte. Passes the radiation test too. But later, in the safes, it simply evaporates."

"And the real catalyte? That went through some hidden pipe?"

"Yes, complete except for the final stage. The pipe was drilled upward from here. He pours the concentrate down the pipe. See those big vats back there? That's where the missing catalyte is."

Waite looked at the great tanks in which reposed interplanetary power for a small group of criminals. The mystery was solved. Ironic success! At that moment he had attained his objective; at the moment that he had vindicated this girl who had for him such great attraction—at

*It is astonishing that the human race did not learn to break up atoms sooner considering how close it came to the truth. An ancient Webster's Interplanetary Dictionary found in the ruins of New York gives this illuminating information on radium, disclosing a brilliant stab in the dark by the ancients: "The radioactivity of radium is an atomic property resulting from the disintegration of the atom, occurring in at least eight stages. The successive products are called 'niton,' 'radium A,' 'radium B,' etc. Niton is a heavy gas, the others are solids. Niton is half transformed in 4 days, A in 3 minutes, B in 25 minutes; C in 21 minutes, etc."

that moment he was standing on the threshold of death! And the world would never know of his discoveries until it was too late.

Now that Glyda had laid bare her secret some subtle change had come over her. She seemed still younger. And in some small degree, happy. She faced death with confidence and courage, strengthened by the presence of this stranger from Earth who believed her. She put up her lips to be kissed, and for some moments in that silent chamber they forgot everything else.

But stern realities pressed upon them.

"They will be back any moment," Glyda said, rearranging her tumbled dark hair under the golden filet. "I had thought of surrendering to the government in order to save my father, but the first day he diverted the catalyte he incurred the penalty of death. I am going to tell him now what is happening. Perhaps he can escape."

She picked up the wrench with which she had felled the scarfaced Martian, and began to tap on a pipe that came through the wall. In a moment there were answering taps.

"He is ready to communicate." She swiftly tapped out her message.

But there was no chance to get a reply. There was the sound of someone at the airlock, the click of a key being inserted.

"We will die fighting," Waite said quietly. "We will have a better chance here than if we tried it out in the open, with no shelter." They had taken his ray-tube, but he had the one belonging to Wurtz. Glyda stood close beside him.

The expected opening of the airlocks did not come. Only an indeterminate scraping noise.

"I forgot!" Glyda cried suddenly. "They see we are free. They have a way of looking inside. I'm sorry! They will kill us without a fight. Say you love me!"

Waite clasped her in his arms. There was no time for the slow bolting on of helmets. Gas was already coming into the chamber. Snaide was thorough, if nothing else.

"I love you, Glyda," Waite said.

The gas had a sweetish, unfamiliar odor. But its effect was immediate. He felt the perspiration starting from his forehead. Glyda was swaying in his arms, her face a ghastly blob of white. The room, silent before, became peopled with phantom sounds, the beating of drums, the booming roar of rockets. The light seemed to become dazzling in its intensity. And then there was no sensation at all.

THEY had misread Snaide's intentions. He had no desire to kill Glyda, and the gas was merely an anesthetic. Almost immediately, so it seemed to the Earthman, consciousness came back with a rush. He was jerked to his feet by the sleek Martian, Create. Snaide himself was supporting Glyda. And Wurtz was lurching drunkenly about, his hideous face still showing the marks of the lines that had held his gag.

The Martians did not speak. They busied themselves with bolting on their captives' helmets, and this took several minutes, after which, with a ray-tube menacingly at his back, Waite began the long ascent to the surface. He could not see Glyda, but the fact that she had also been helmeted indicated that she would follow. Would Snaide dare to let her live? It was doubtful. Her knowledge was too dangerous. Old Graxon, too, would be murdered if he merely indicated the fact that he had received that last message.

It seemed a pretty hopeless situation, but it is a human characteristic to hope against hope. Waite went ahead warily, trying to watch, by the faint reflections on the inside of his glass helmet, when Snaide should approach to deliver his blow; the expected knife stroke that would rend his space suit and deliver him to asphyxiation.

They climbed up a ragged rock slope. The rock was cindery, porous. Great jagged pinnacles of it reared up on every side. The distant yellow sun threw hard shadows. High overhead was the intense pinpoint of the spaceport light, barely distinguishable from the ground, from the myriads of stars that burned steadily and coldly in the black firmament. Illogically, an ancient rune came to the Earthman's mind:

"And from a proud tower in the town
Death looked gigantically down."

There was no town here, and Death was walking behind him. He could see the dim reflections in his helmet. And at the bottom of the slope, to one side, was the concrete top of the mine city. Its airlock was dark and deserted.

They reached the side of a deep ravine, a sharp cleft in the rock, filled at the bottom with carbon dioxide drifts, and here the Martians attacked.

They did not slash with a knife, as anticipated, but went about the business in a way that would be more convincing at the inquest. Three bodies struck the Earthman and bore him down. They dragged him across the jagged, edged rocks until a fold of his suit caught. Waite's own struggles helped them. There was the sickening tear of tough fabrics, and the soft *whoosh* of escaping air, followed by bitter cold as a puff of outside atmosphere penetrated through the rent.

Sudden faintness overcame Waite. Although there was still oxygen in the suit, its pressure was very low. Dimly he felt himself lifted. Then he had the impression of floating, only to land with a jarring thump. He could feel the hot wetness of blood flowing from nose and ears, and looking up with pain-dimmed eyes he could see a patch of black sky, cut off on either side by rough rock walls. They had thrown him into the ravine, and only the fact of Goddard's low gravity had saved him from immediate death.

Waite wondered what had happened to Glyde. His condition was one of curious abstraction and inertia. He could no longer feel the cold at his back where the rent was. The skin there was numb with cold. But the oxygen regulator on the little tank over his shoulders was fluttering madly, trying to equalize the pressure. Perhaps a minute or two—then the tank would be empty.

Delirious already! Waite saw the image of Glyda above him. She was smiling through the glass of her helmet. Her green eyes were brilliant in the wan sunlight. He realized that she was no hallucination. She had climbed down to him. She rolled him on one side, grasped the folds of the torn suit. He could feel her fumbling, hindered by her gauntlets. But she succeeded. In a moment the suit was filling, and the valve fluttered more slowly.

Rolling the jagged ends on themselves, Glyda made a temporary but effective repair, and as the oxygen pres-

sure rose, strength returned to the Earthman. Later he might experience the horrors of the bends, but he was alive, and life beckoned.

Glyda was talking, but something was wrong with the helmet phone. She put her helmet down so that it touched his, rubbing with a thin squeal of glass on glass.

"Can you hear me?"

"Yes. Glyda, what happened?"

"Somebody in the city came to help us, among them a couple of I. F. P. men, and many others. They came through the lock just as Snaide and his men threw you over. They're fighting now. Look!"

There was evidence of it. On all sides tall pinnacles of rock towered into the sky. Every once in a while one of them would show a small glowing spot. The place of a heat ray's impact. That meant Snaide and his men were at bay somewhere in that tumbled wilderness.

AGAIN Glyda's helmet clinked against Waite's.

"My father understood the message. He warned the police. But he may not have told them everything."

Waite looked up into the lovely face, wistful, appealing. He motioned to her to touch helmets again.

"Are you asking me what I shall do?"

There was no need for an answer. Her eyes said "yes."

"If I live," Waite said with great distinctness. "If I live, I will have to make a full and complete report to the interplanetary authorities. You will be sent to Earth under diplomatic immunity. But in diverting one single grain of the catalyte . . ."

He did not go on. The dumb anguish in her eyes cut him to the heart.

"They call it high treason. You understand? It is my duty, if I live. Don't you understand, dear? By saving my life, do you know what you're doing?"

It took courage to say that. Anton Waite was young. Life meant much to him. But he was so constituted that he would not purchase it from this girl for an implied promise that he could not keep.

Her head went up. The hand that held together the rent trembled. Again her pink skin became that marble whiteness so strange in Martians. She looked straight ahead, as one who sees the end of hope. But the hand that formed the barrier between Waite and death remained firmly where it was.

Overhead, a man appeared on the rim of the rock. His was the attitude of a fugitive. Ray-tube in hand, he faced back. Pale red beams flashed from the tube in his hand. He leaped the chasm with lightness incongruous with so much bulk. Once more he looked back, and as he did, his glance fell on the man and the girl at the bottom. Waite saw the hate distorted features of Snaide, the Martian renegade. It was all like the frozen section of a dream, broken by the sudden bloom of a red spot on the pinnacle beside Snaide's head.

Then Waite saw the tube in Snaide's hand swing around and downward with a deadly deliberateness. But Snaide never loosed that beam. The slender red ray from the direction of the city struck his helmet. The tough glass instantly cracked into innumerable pieces, which flew, under the internal pressure, in a shimmering cloud in all directions. Snaide slowly turned on his heels, his exposed head puffed and bleeding, and pitched headfirst into the ravine. His body landed in one of the white banks that so much resembled Terrestrial snow-drifts.

Glyda once more put her helmet down. Her voice was resolute, but infinitely sad.

"Farewell, Mister Waite, the only man I ever loved. I found something on Goddard, and lost it. That was happiness. I shall never see you again, Anton Waite." Her chin trembled, but she went on bravely.

"I shall go back to Mars, to Mesuen. What does it matter?" She smiled whimsically, concealing her heartbreak.

"And if you're ever in Montesso, ask for me at the theater. I will most likely be back by that time. Ask for me, and I'll get you a pass."

* * * *

The men from the city made their approach cautiously, alert for an ambush, and it took them some time before they found Glyda and the Terrestrial. They also found the bodies of Snaide and his men, and it was a first-class sensation. Hackett and Belts insisted on taking Waite to the I. F. P. office for first-aid treatment, and there he soon recovered sufficiently to think over his next move.

"Buck up, Waite!" Hackett urged genially. "What's the matter with you?" He applied tape to the medicated cotton dressing he had applied to the raw frozen area on Waite's broad back. "Here you've done a job any of us would be insufferably proud of, and you mope around like a recruit who's cracked up his ship on a meteorite. What's soured you?"

"You'll never know," Waite said dejectedly.

"Woman!" was Belts' sage contribution. He looked at Waite with sympathy.

"I want you two with me when I arrest old Graxon," Waite said.

"Does he know?"

"Of course he knows. He gave the warning to save his daughter. Men, I feel rotten about this thing!"

A few minutes later they were in the restricted zone surrounding the refinery, and after complying with the formalities, Transon let them in to the old Martian chemist. Graxon seemed not unduly agitated, but Waite remembered Glyda's stark courage, and he ascribed Graxon's calm to the same reason.

"Graxon," he said, "I'm sorry, but I have to arrest you."

"For what?"

"For diverting catalyte from the use of the use of three governments; for substituting solidified catalyte A."

Graxon folded his arms over his stocky chest. A quizzical smile illuminated his square features, and his eyes twinkled.

"How do you know I diverted catalyte?"

"It's down there in Snaide's cave."

"That slop? Those are the tailings. There may be half a grain in the whole mess. The irreducible minimum. Enough to work a 'scope. Good enough for Snaide and his ignorant crew."

"But what did you do with it? You didn't deliver it. You fooled the Authorized Representatives. What about it?"

"Is there anything in the Regulations fixing the quantity I must deliver? Read 'em, as I did. I'm in absolute charge in this room, and my only limitation is that I must deliver all the catalyte I finish. Well, it happens that I didn't finish it. I saved up a barrel of very rich con-

(*Concluded on page* 86)

BROOD OF HELIOS

By **John Bertin**

(*Illustration by Paul*)

Like some animate devilish thing the mechanical monster spun and thrashed among the fleeing, scattering, yelling horde attacking the city beyond.

BROOD OF HELIOS

What Has Gone Before

PROFESSOR GEORGE MEREDITH, eminent scientist, his niece Ruth Meredith, her friend James Gregory and Alan Deneen, former football star, awaken from a trance in Meredith's laboratory in a skyscraper in the heart of New York to find themselves in another part of the universe. Meredith had been experimenting with electronic barriers.

They find themselves on the side of a hill in a wild desolate country, filled with a strange rubbery vegetation and populated by strange animals. Above them are two suns, a red and a blue sun, and at night a strange moon shines out. The first night in the wilderness they see a great rocket ship shriek across the sky. They realize now there must be sentient creatures on this world. One ship falls near their hiding place and they rush to meet it. They are attacked by a group of kangaroo-like creatures. While Gregory and Meredith rush to the ship, Deneen fights off the creatures with Ruth at his side.

The two men are apparently captured by the creatures from the ship, which rises into the air again and disappears to the north.

Deneen recovers and with Ruth they fight for months against nature for survival. They find that this world has two types of vegetation and life—one of the non-protoplasmic rubbery variety, and the other the kind of life they had seen on earth.

Deneen and Ruth after seeing rocket ships eternally shooting toward the north determine to go north themselves and try to find the civilization that must exist, rather than fight brute nature for the rest of their lives.

Now Go On With the Story

TANGIBLE recollections were very rare now. They were following a wide stream that came curving out of the east and ran north, and life grew easier again. But then moods began to trouble Deneen. They grew upon him. He brooded by the fire. The woman sometimes cried. The weight of their endless quest was telling upon her. Deneen broke his silence one night.

"Ruth—something is wrong with me. I see things. Like a picture in my mind—two pictures. One is of a white city, terraced, columned, where move people—many people, and over all this I see a man's face. A man with great eyes, Ruth. Then the pictures change and there is a deep valley set in mountains and smoke; and streaks like rockets coming up out of the smoke; and all around, coming down the hill trails are men—short, ugly customers, armed with clubs. I can hear drums beating steadily. What in the name of common sense can it mean?"

It was like hearing Deneen talk after long years of silence, for lately they had seldom voiced complex thoughts. The woman brightened. "Just dreams, Alan."

"No!" He shook his head. They were camped near the river banks, and water gurgled a low song in the darkness beyond the fire. The man pointed to the moon. It had taken a strange appearance now, a phenomenon that confirmed Deneen's early theory of complex rotations. Two crescents hung in the sky, the horns opposite one another, one faintly red, the other slightly blue, and forming an oval enclosed by the horns was the faint pale sheen of the satellite's center.

"There seems to be something calling me, Ruth!" the man half growled. "Driving me . . . From up there . . . I forget your uncle and Gregory. Sometimes I wonder if they ever lived, if there ever was another world. The rocket ships—we haven't heard a sound for ages it seems. I try to figure things out, but it's the morning coolness that counts, the song of birds, a good hit with the bow, good meat and . . . you. I've become an animal, Ruth. I can't remember why we started—why we keep moving. But I'm driven! Someone is talking to me all the time, sending me north—north. And the voice is connected with that city I see, that white-columned city. Ruth I'm afraid I'm going mad!"

She laughed confidently. "Not you, Alan. You are too strong. So strong!" she laughed a bit in the crush of his arms. "Alan—what does it matter? I am content, whether we move or stay."

"No," he answered. "I know. This can't go on. Somewhere we'll have to stop. This river runs to some sea, some lake. We'll make a home, Ruth. The things in my mind are probably the distortions of old memories. Once I saw your uncle's face in the place where the rockets shoot up. Just distortion of old memories. This world is empty of our kind." He caressed her gently with his great hand.

"Little woman — the bravest woman God ever created!" She snuggled in his arms, tears of relief wetting her eyes, for the man seemed to have come back to her after a long absence. The incessant battle with naked nature had hardened him of late, broken the little contacts of mind, the tendernesses of another world.

Then, as she relaxed, happy in his embrace, she heard Deneen exclaim in hoarse surprise. "Ruth—look! Look—up there! The moon! Great guns!" he cried out, rising with her to his feet—"that's not a natural light! That's a signal, Ruth!"

In the faintly visible oval between the crescent horns of the moon had appeared a branching of red fire—a tracing as of a miniature tree, a single stem that spread into a many-fibred crown, a profusion of little filaments that wavered, lengthened, shortened. It quivered there

THIS most unusual and gripping story enters now upon its most exciting phases—when part of the terrible mystery that hangs over our characters will be revealed. We have seen how two highly civilized beings can suddenly be plunged into an eternal conflict with nature; and be driven down, almost, to the level of the brute in the bare struggle for existence.

They have two alternatives—to live as they can, in a state of semi-savagery but security, or to dare the dangers of the unknown forests to try to find the civilization that must exist somewhere on this planet. There are undoubtedly men like themselves to be found . . . perhaps friendly . . . Their two friends must be found and the whole terrible mystery explained. And it will be explained in this installment.

in the heart of the moon, an incredible thing, pulsing .... pulsing . . . then winked out, to again appear and go out. Deneen muttered hoarsely: "Ruth—I can see! See the city! See people, white-faced people, gathered in a great square."

He shook his head. "This is queer business. Someone is calling me, Ruth. I hear him!" He was silent for a long time, while the woman stared with wide eyes at that weird signalling in the sky. Somewhere, on the plain beyond the forest, a wolf howled—long-drawn, mournfully. Deneen suddenly relaxed. He blew a great breath through his nostrils. "Whew! Now it's gone. I must be going daffy. But the voice seemed real, Ruth. And I saw the other place again, where the rockets shoot out of the valley. Saw your uncle's face."

He sank down by the fire. "The little I know of science doesn't fit into this," he muttered. Together they watched the red, winking message in the sky. The fire died low.

Morning found the moon huge and distorted in the mists to the west. Deneen moved with new purpose. "Something's going to break!" he said in the familiar slang of a forgotten world. "There are weird things going on in this place." He paused in the act of slinging the arrow-quiver over a brawny shoulder. "Say—Ruth! What if those rockets came from —up there? Why not?" And later, as they moved slowly along the river, he muttered again. "Why not? Fantastic—but simple compared to another puzzle. How did *we* get here?"

The river broadened. Deneen chafed at their slow pace He was struck with an idea and after a few days of hard work, with vines and fallen branches, it assumed tangible form in a rude raft. "We should have done this long ago!" he growled.

"What if the river turns?" asked Ruth. "It might take us to some place the rocket ships never pass."

"They're not passing in crowds now!" muttered Deneen. "This river ends in some big water. We'll follow it down!"

JOHN BERTIN

THAT night they looked with intense scrutiny at the moon, but no red message pulsed in its center. The blue crescent waned, the red one grew as the days passed. Deneen was restless. Their life was easier now, floating down river, finding game around the bends in the winding stream; and as the iron rigor lessened, the man's mind ran on and on. He wondered about the phenomenon on the satellite, about the things that had appeared in his mind.

One late afternoon when the red sun, alone in the sky, threw long friendly shadows of weeds across the quiet waters, and long-plumaged fowl raised raucous outcry as the raft glided slowly around a bend, they heard the far, shrieking fizz that heralded the passing of the rocket ships.

"They seem to have their seasons," muttered Deneen, then grew rigid, a long push pole in his hands. "Ruth!" he said sharply: "That thing's falling!" The woman had been sitting among their scant possessions, face cupped in her hands, gazing at the sun splashes on the water. She came erect beside Deneen. Above them the shrill fizzing passed, and they saw the ship clearly—a long, silvery hull, plainly heading downward, passing out of sight beyond the wooded river banks.

"That ship *fell!*" cried Deneen, his powerful throat showing the sudden swell of veins. "Men, Ruth! Somewhere around here!" He pushed with impatient force at the long pole.

But night came swiftly in that world. A spangle of stars, veiled by the bright nebulous patches of the Milky Way, gave a faint illumination to the river's broad breast, and Deneen kept on. The woman did not move. She sat on a fresh wolfskin which had replaced the reed mat, and watched the shadows, the brawny back of Deneen as it twisted to the thrusts on the pole, and the forest line silhouetted against the stars. After a time she said: "Listen, Alan! Don't you hear—" a sudden alarm changed her voice. "Drums, Alan. Beating! Listen!"

The night air carried a muffled pulsing, distant, vaguely stirring. "Drums!" muttered Deneen. "Like the ones I've been hearing, Ruth. War drums!" He grounded the raft. "We'll stop right here." The sense of danger worked on him, and the habits of their long trek drove intangible considerations from his mind. He jumped out into shallow water and drew the raft to shore with a surge of his powerful shoulders. In the distance the drums throbbed, monotonously.

"Look!" breathed Ruth. Over the forest edge soared a thin white streak. It burst at the top and spread into a fanfare of colors, like the fireworks of a patriotic demonstration in the world they knew. Another and another thin swift streak went up, and burst into spangles of blue and crimson and green. In the distance a shrieking fizz sounded and grew.

"Look!" breathed Ruth again. "Another rocket ship! It's slowing circling around! It's shooting things down!"

Deneen stood like a statue, watching a silvery hull curve incessantly around a section of sky. From its bottom a thin even line of vapors trailed like streamers in the wake of flight, and near to this sudden puffs and flares marked the starting of projectiles which streaked earthward.

The drums in the distance beat faster, a pulsing rhythmic, savage pounding in the night. Deneen held Ruth close to him. A mental struggle, swift and painful, fought itself out in his mind. Instincts developed by their long sojourn on the plain and in the jungle whispered to hide, to remain safe. But the man muttered a sudden decision. "I'm going over, Ruth. Going to see! Those rocket fellows are up against it! The ship that went down is calling for help, and the one above trying to give it. Against what?"

Ruth did not protest at all. Leaving the raft tugging gently against its land-supported corner, they headed into the forest.

CHAPTER VIII

The Mysterious Ship

GUIDED by the circling rocket ship above, they made fair speed through the woods, Deneen helping Ruth over obstacles. The forest thinned. "Alan!" the tiring woman breathed. "The ship's moving—to the left. The drums are fainter!"

Deneen lifted her in his great arms, and waded a small stream. Straggling growth on its opposite bank showed open savannah-like country, wan lit, pale and mysterious in the sheen of the new-risen moon. They moved faster, out into the open, Deneen's wary gaze flitting to every tree clump in quest of his only and persistent enemies, the greyish-brown wolves.

The rocket ship, still circling, was far down in the sky. It spun over, and finally behind, low hogbacks of earth, rounded hillocks that showed on the horizon. "Alan—the raft—our things!" protested Ruth. But the man scarcely heard. "Come on!" he urged. "Try to stick it out. We've got to see where that first ship fell."

The moon was higher in the sky by the time they came to the rises, and Ruth was exhausted. Deneen stood upright over her as she lay spent in the long grass, his head turned to the hill-buckled skyline. The sound of pulsing, like primitive war drums, had died away. A profound silence lay over the moon-misted world. An impatience fretted Deneen.

"I'll carry you, Ruth," he said, stooping to swing her up in his arms. "Can't leave you here. Hold tight."

Breathing rapidly, his lungs labored, the aching muscles of his legs protesting, Deneen topped one of the mounds, and swung Ruth down. The sight ahead stiffened both. Levels, darkly smooth like glass, were in the distance, levels that were not land. The recognition came to both at once. Tiny crinkles shimmered in the sheen of moonlight. Nearer to them, on a stretch of pale earth, white billowy things were breaking, rippling. "Waves!" cried Ruth softly. "The sea, Alan!"

Deneen's hawk vision pierced the night. The dark levels stretched away out of sight. To the right the shoreline went on till outlines blended together. The line of thick vegetation that marked the river they had been following came out of the hills and spread like a fan in the left foreground.

The man nodded. "It's the sea, all right. We'll search for that ship in the morning, Ruth. It fell somewhere on that shore. We haven't time to go back to the river."

"Our things, Alan—the fire tube," she reminded.

"I want to see that ship right away," he persisted. "We can go back any time along the river. If the raft slips off, it'll come down to the shore, and we can't miss it. No—we'll rough it," he decided, a trace of grim humor in his tone. "We'll sleep right here."

It was slightly cool on the hill. A wind rustled the grass, and the fringe of bushes at the beginning of the slopes. Ruth curled up, her head against the man's shoulder. Deneen lay flat on his back, wide-eyed, gazing at the sky no man of the race he had known had ever seen—a star-studded sky with here and there knots in the white tenuousness of the Milky Way, splashes of light like tiny suns. To right of him a vast moon, nearly full, sailed over the waters of an unknown sea. Night after night that firmament had imprinted itself upon his senses, and it was no longer strange. The feel of the hard ground beneath him, the rustle of the wind in the grass—these things were woven into the fibre of him, and memories of another world were dim ghosts. But out of those memories his mind began to frame thoughts.

"We must have come quite a distance since we started, Ruth. Jungles where Manhattan should have been—forests and plains north, and then a sea. Might be Hudson Bay," he muttered jokingly. "Do you know?" he continued. "We would have frozen to death long ago in this latitude, if old Helios ruled the sky. But it was a good star, Ruth, that sun of ours—a good star."

"Alan—how strange, how unbelievable it seems when we think of it!" she murmured. "We had almost forgotten."

"That flickering on the moon woke us up. It was a mighty, queer thing that, Ruth. A mighty queer thing!" he reiterated, remembering a voice that had spoken insistently, steadily in his mind, and the pictures, vague and stirring, of two places he had never seen. He watched the huge satellite, turning his head. The woman's hair blew across his face.

Then, as he looked, the man stiffened. The moon was low toward the horizon, a phenomenon due to their latitude. But it was something about the vast red globe itself that held Deneen's attention. Black, irregular markings seemed of a sudden familiar. There was the circular cheek edge, a central shaded portion shaped like a nose—Deneen pondered, raising himself slowly on his elbow. It was like the face of the earthmoon, distorted, huge.

He lay back again. Just a resemblance. The light and other aspects of the huge satellite were continually changing with the days. Deneen relaxed. Stillness, like a profound benediction was over the world. Memories died in the man. He slept.

MORNING found the man and woman moving down the hills. The wind had risen again and after a short march, there came to both the familiar tang of brine, that again set their minds astir with many memories. But Deneen moved cautiously, edging out of the low growths that ran down to the shore.

The sun was clear of the horizon, but hung low over the trees, mute testimony to the distance they had traveled toward the pole of that strange globe. The coast-line, bare and irregular, ran away to the right of them. A faint diffusion of gold gilded the sea, coming from the low-riding red sun. The woman pointed.

"Look, Alan! The ship! See it—there by that headland! See it glints, like metal?"

Deneen saw. He was very rigid. The world was pristine, untroubled by any moving thing except the short, crinkling waves. "Come on!" Deneen muttered, a tenseness stealing over him. Together they went toward the fallen rocket ship, keeping close to the brushline, instinctively. With an ease developed through many days, they slipped from one covered point to another, the wisdom of the wilderness in their feet and supple bodies, its grim strength etched into the man's bearded face.

But they felt close at that moment to the world both had known. There ahead of them it lay, its nose grounded

in the sandy soil not ten feet from the water, a long cigar-shaped hull, a thing formed by intelligence, by tools and a background of knowledge. The woman's blood beat dully in her ears.

But no men, nor creatures, moved about the ship. Deneen swung the great bow to his left hand. They were nearing the thing now, and it grew in dimension.It covered a considerable part of the wide, bare beach, a beautifully streamlined shape, glinting faintly at top. Near the forward end an oval break in the smooth surface marked an open door.

"Wait!" said Deneen sharply. "What's that?"

Close to the water, some twenty feet away from the forward end of the ship, an object lay sprawled. The tide was evidently rising. As they looked, a part of the inert mass shifted to the wash of a large wave. The movement connected ideas forming in Deneen's mind.

"That's a man, Ruth!" he said, his voice a bit metallic. "A dead man. The wave just tossed his arm." He turned. There was a steeliness in his grey eyes. "Those drums were war tom-toms all right. I'm going over to that ship. Perhaps you'd better wait here, under cover."

"No, no," she disagreed hastily. "No, Alan! I'll come along."

The dead man lay on his face, his left arm drenched by the wash of the waves. Deneen approached very slowly. There seemed a strangeness about that human form on the ground. His scientific knowledge rejected the too close resemblance to . . . This was another world, in another part of the universe. The long solitude, save for the companionship of the woman in the journey through jungle and plain, introduced an added touch of unreality, but the nearer he approached the more Alan Deneen felt a sense of normal wonder, of acceptance and curiosity. The sprawled form was undoubtedly human. And it was neither Jim Gregory nor Dr. Meredith.

Deneen knelt in the coarse sand, putting the bow down. The dead man was quite bald. One side of his head was smashed, an ugly dent which would have horrified Ruth Meredith at one time. But she looked on as Deneen turned the body over, though her face went pale beneath its tan.

"Clubbed to death!" muttered Deneen. Then his fingers plucked at the man's clothing. "Curious stuff this is. And look at his arms and shoulders. Smaller than a woman's." He paused and stayed rigid for some time.

"What is it, Alan?" questioned Ruth anxiously.

Deneen shook his head. "That face, high forehead, slim nose—I've seen a face like that in my mind." He rose. "We'd better look around. The ship first."

They approached almost reverently. The great hull was slightly tilted, and through the open oval of the doorway they caught a glint of metal. Deneen looked in and up. "Jammed!" Jolted straight over a swing pin, and jammed. The ship struck the ground pretty hard."

In front of the hull the earth was scoured and pitted and burnt. "Guess they got their bottom front rockets going in time to prevent a complete smash." Deneen's gaze went along parallel ridges, running down the sides of the ship. Between each set of raised metal bars was a slot, apparently punctured by myriad holes. Every four feet, flush with the outer surface, was a square of glass or substance much like glass.

"Let's go in," Deneen said, his breath a bit quick. "This is some rig."

Ruth cried out in astonishment when Deneen lifted her through the doorway. The interior of the big ship stretched away before them. Lanes and blocs of illumination from the rising sun, coming through the square windows, were splashed on tier after tier of seats. An aisle ran through the center, and at spaced intervals, box-like proturberances reached out from the wall. Deneen felt a slow surprise.

"This looks like a big, simplified Pickwick bus!" he muttered. "And how do they drive it?"

THE forward end was practically bare. At first glance Deneen was reminded of an electric tram car; save that the front window was bevelled to fit the sharp prow. Below the glass was a lever desk of a long, polished substance, and it held but two handles—plain things that moved in slotted gauges. Then above his head, over the window glass, Deneen saw a row of instrument faces.

"Ruth!" he exclaimed. "Look at those things. Instruments of some kind, circular, the symbols and pointers covered with glass! Ruth! Don't you feel the world opening up? These rocket creatures are people, our kind of people—I don't care where we are!" His emotions subsided. "Well—it looks as if they left us in sole possession. Let's explore this, from end to end. We'll let those levers alone for the present.

The box-like attachments to the wall yielded the first surprise. Deneen, tapping around on the surface of one, struck some hidden spring, and a door swung silently open. Within, arranged in numerous tiers, were tiny packages. "Chewing gum!" said Deneen in surprise, as the neatly-wrapped packages bent in his fingers. Ruth laughed as she tore the covering. "Paper, Alan—paper!" Then—"shall I taste?"

"No," decided Deneen. "Don't take a chance. Well—we know one thing. The rocketeers chew gum." He shook his head in puzzled amazement as they continued their search. "What about baggage?"

At the rear end of the ship, in a compartment closed by simply latched doors, they found the baggage. They were both rather excited now. "Why—these are suitcases and beautiful little handbags!" Ruth cried.

Deneen went to one of the square windows in the larger compartment and looked out. "Thought I heard a yell," he muttered in quick uneasiness.

But the beach was bare. By pressing his face into the window sashing, several inches deep on the inside, he could see the dead man by the water. The waves were beginning to break over him. Dull slaps came through the flooring on which Deneen stood. Water was beginning to fill the gouges made by the rocket gases, and hit the nose of the ship.

"Alan!" Ruth called from the baggage room. "Look! Rouge! Face rouge—a mirror—in one of these. Two slabs of that gum. And a handkerchief!. A scented handkerchief!" She came to the doors, her face flushed with excitement over the marvel of it, a sparkle in her eyes—a woman clad in a wolfskin robe, holding up a filmy white square of cloth.

But Deneen did not stop to properly grasp the full meaning of that scene. An uneasiness troubled him. "Say, Ruth," he called as she turned back—"let's get closer to that door. Come on!" Some note in his voice caused

her to drop the black satchel she had taken down from orderly racks. She had heard Deneen's voice calling like that through months of incessant vigilance, and she ran out at once, a supple and alert figure, her gaze studying the man's face.

"What's wrong, Alan?"

She followed him without question, casting an anxious look toward the windows.

The beach was bare. Deneen stood before the oval doorway, his piercing vision ranging slowly over the forest line beyond a ragged border of trees and grass. He slung the longbow back across his shoulder. "Don't get away from that opening," he instructed. "I just want to look at these handles—get some idea how they drive this thing."

But the two levers, rigid at the near end of their respective slots, were not informative. Deneen shoved slowly, but could not budge them.

"Liable to bust something if I push hard," he said, opposing an impulse. Then—"Hello—what's this?"

To the left, on the side wall of the beveled framing about the front windows, was an array of buttons, foregrounded on a greyish white plate. Below each was a symbol, a crisscross of lines evidently in the same general mode as the markings on the instruments above. Deneen pushed one button and Ruth said quickly. "The lights, Alan! See!"

Deneen looked around. "Well—well! This is like home." He tried various combinations of lights. They were imbedded in the ceiling, along the walls. "Those walls are plenty thick," commented the man. "Room for batteries in there, and whatever system feeds the rocket gasses to those slots along the hull, though what good side-slots are is beyond my earthly dullness." He pushed the final button, a large, protruding one. Apparently nothing happened. About to examine the levers again Deneen's attention was drawn by something else.

There were dents in the smooth surface of the board upon which his hands had rested—long scratches. And a smear of some reddish substance that caused a setness to grow upon Deneen's face. He slowly moved back and joined Ruth. "Let's step out," he said casually, and gazed as he moved out of the ship at another red smear near the door-framing. It had suddenly come to him they had forgotten the drums of the night before, and the dead man by the water. "Let's look around the beach awhile," he decided.

But his uneasiness was apparently unfounded. Not a sound save the silky tearing of the waves along the shore marred the morning air.

"This beach has no tracks on it, but our own!" Ruth noticed. "How could they have left the ship, or been taken from it?"

CHAPTER IX

Power at Last!

DENEEN did not answer for some time. They moved about, occasionally stopping to gaze, like wary things of the wild, along the line of forest. "That other ship," speculated Deneen. "Circled around about here. It seemed to be going that way when it dropped out of sight behind the hills. Now, if this ship fell, and stayed where it fell, the other was probably following whoever or whatever captured and killed the passengers and crew. Following the drum beaters. That's the best guess I can make."

"But why aren't there signs of the fight, of the struggle?" asked Ruth, keeping close beside the man. "The beach is clean."

Deneen stopped.

"I have it. The tides! This ship fell just after sunset last night. Between then and the time of our arrival the waters washed up to that kelp line and back at least once, perhaps more than once. That dead man was left there by the waves as the tide receded. The fight, or whatever happened, must have taken place when the tide was down, for there's the rocket gas marking near the bow. Even though this stuff they use is mighty strong, it couldn't have burnt the sand through two or three feet of water."

He faced around, reconstructing the scene in his mind: "They're falling—why—we don't know. Then—just before hitting, the pilot gets control of the thing and breaks the shock, but just about in time for the ship hits with enough force to jar the door open. Maybe the passengers pile out. The rest is hard to figure, because we don't know about the drum beaters. But after whatever happened, the ship is left empty. The sea comes up, washes that body about, and perhaps others, but it can't move the ship. This beach has a gradual pitch, and at high tide the water did not reach the door edge. We'd have found traces of water in the interior. Then the tide goes down, leaving a dead man at a certain spot, and the beach clear of all marks. It's coming up again when we arrive. That's a fair picture of it. I'd bet on it!"

Ruth watched the man's bearded, strong face and saw again the Alan Deneen of their first moment of meeting—Deneen, the All-American halfback, a quick thinker, a man with a gift of speech that backed a splendid body.

He had become morose, grim, strong as the wilderness. But now little fires of animation were in the grey eyes. "That's it, Alan!" the woman said, a glory rising in her at the easy trip of his words. The spirit of them had not been killed—it was there, human and alert and questioning, as if the presence of that long streamlined hull had given them back their civilized heritage.

"Alan!" she added. "That handkerchief. I took it with me!" She reached into the wolfskin. "A perfumed handkerchief. We can't be off the earth. We can't be. Only a woman of *our* race could have use for such a thing. That man, a ship with glass, instruments, paper—of course this is our world!"

Deneen put his arm around her. "Let's get back to that beggar near the water, Ruth, and take a good look at him. I know," he added, as they began to walk over the rough sand. "Since that first night on the mountain, when we first saw men, I've sworn to myself we could not be in another part of the universe. Trees, beasts, birds—everything except that freak vegetation spoke of our own globe. And last night I fancied the moon had a face, the old face. But what about the vegetation and the hoppers? What about *that?*" He pointed to the sun, a great red ball low down over the forest.

"And these clothes." He stooped and dragged the dead man away from the greedy, itching tide. "Feel these clothes. Like—what are they like? Like metal, pliant, unearthly metal. And that ship, Ruth. The terrific force of the rocket gases, scarring and gouging the earth—the

mystery of how a thing like that can move, right side up through the air at the clip those fellows make."

"Look at his mouth," said Ruth in a low tone. "How small it is! Why—he scarcely has a mouth at—" she stopped suddenly, her eyes on the kneeling Deneen.

He was staring past her. She could see the veins cord in his throat.

Like a startled fawn the woman turned and fell back slowly. The forest line was alive with skulking figures—figures that galvanized into quicker motion as Deneen rose from his knees.

Somewhere in the trees a drum began a monotonous beating. Another. The woman cried out, choked terror in her voice. The line of hostile figures formed an advancing crescent, ringing in the ship. There was no way of escape.

DENEEN'S shoulder pushed Ruth aside. "The ship! Run for it!" As she turned and sped toward the long hull the twang of a bowstring sounded behind her again and again. Ruth slowed and looked back. Deneen was running now, catching up to her. He swung her along, and fairly threw her through the oval doorway of the rocket ship. The woman twisted out of his way. Deneen vaulted in, pivoted, and knelt in the oval. The great bow bent to the pull of his arms. The sinewy string sounded its deep, vibrant note.

Ruth reached up to one of the upholstered chairs, and then to her feet. She was faint with dread, a momentary reaction that passed. Through one of the windows she could see the running horde, closing about the ship. Short, shaggy men, animal-like men, in a confused crescent wave. She saw one clutch at his chest, into which had plunged a long arrow. Another! The wounded and dead created little eddies of confusion, but the momentum of the living wave was too great for Deneen to halt. The frantic woman turned to watch him, kneeling to right of her, sending the deadly arrows home. She looked around for some weapon, some means of aiding him. A bedlam of yells were in her ears—the steady pound, pound of distant drums.

Then the ship jarred to the shock of rushing bodies. She watched Deneen drop the bow, flail with his fists at arms and hands and clubs that appeared in the doorway, then spring erect. He caught the curving frametop of the oval door, with hands on the opposite sides of a pointed hinging, and suspended by his arms, he kicked savagely with both feet at a brown, twisting mass that was forcing a way into the interior. Once, twice, he kicked, then fingers fastened about his legs—a thrown club struck his stomach, and Deneen came down, growling like a wounded bear. He slashed himself free with his fists, tried to rise, and staggered back into the open compartment circled by the driving platform.

Ruth saw things clearly, like a picture in a frame. Bristling spears were in the opening now, and the brownish writhing mass was entering again. Deneen turned, without thinking, in a blind search for something to strike with. He jerked at the levers.

A long deafening shriek of escaping gas rent the air. Ruth was thrown across the aisle, and back. She clutched at a seat. The floor beneath her seemed to tilt and drop and twist. She got confused glimpses of Deneen holding grimly to the levers—glimpses of a brown shape clutching the door-framing. Then the ship struck with a terrific jar. The woman's grip on the chair was broken and she was thrown violently to the floor. A great splashing mingled with yells from outside—water was pouring through the door, sweeping over the figure still glued in the entrance.

Ruth turned over. A dirty green wave came down the aisle, slapping her as she rose. But through the spray, she saw Deneen leap from the lever-platform to the door in one jump, his brawny torso twisting to the drive of his right arm. An iron fist smashed into the face of the brown man in the door, who went out backward, swirled in the mass of water entering the ship, struck alongside and was gone.

Deneen floundered back to the levers. The floor was knee deep under water. Deneen pushed the handles out, repeating his first experimental move.

A hoarse roaring churn drowned out the cries from outside. The water-logged ship lifted at its rear and spun, and for a moment the water entering the doorway was a solid wall. Ruth felt a crushing pressure in her ears. Then they seemed to flip around like a chip. The woman was tossed and thrown against the seats, into the waist-high tumbling water. It swept her back along the aisle. With a great effort Ruth reached out and edged between the seats. The water was pouring out of the door now.

When her vision cleared she saw the sea far below, the forest line receding, then a strip of beach where little black figures danced. Praying silently the woman held on.

Deneen gradually controlled the ship. It ceased its sudden jerks and spins and dips. A steady fizzing, like a thin, continuous shriek, came to Ruth. A low roar of wind came through the open door. Above these sounds she heard Deneen calling. Cautiously, slowly, she made her way to him, sloshing through the shallow water. Her body ached dully from the falls—the pounding she had received. "Yes, I'm all right," she answered his quick question. Then, "Alan—we're going higher!"

"This thing is simple!" reassured Deneen loudly. "So simple I made a mess of it. The right lever lifts her up—not only at the front but right up bodily. The left pushes her. Easy. See?" He pressed the left handle further along its marked slot.

Ruth lurched. The thin shrieking grew sharper. Through the open door, on the face of the waters below, appeared a dark dot, a smear of driftwood that moved backward out of view with a quickness attesting to their speed.

"Boy—but this thing can go!" Deneen was feeling the reaction. After a time he calmed down, though still holding the levers with grim tension, like a novice at the wheel of an earthly automobile. "Sure you weren't hurt, Ruth?"

"No," she lied, her eyes on his hands. "Alan—I thought—"

"We were done for," he interrupted calmly without looking around. "So did I. Well—we know what the drum beaters look like now. Funny about these levers," he continued, purposely keeping up the flow of conversation. "I couldn't budge 'em before. Now they move as if on bearings." He was still very rigid—gazing directly ahead, or shifting his glance to the row of instruments above the glass. "We'll be all right, Ruth," he reassured. "We'll be all right. Must have been that button—" nodding his head to the left. "The big one."

Ruth pressed close to him. "But where are we going, Alan? We have no food—no fire—can you stop this thing, and bring it to earth?"

"That's just what's worrying me!" grunted Deneen. "These levers only move forward and back. Watch. Hold onto me. No danger. If this bus was the tipping kind, it would have spilled us long ago."

RUTH held on. Deneen's left hand drew back, and they were pressed against the platform by their momentum as the ship slowed. He pushed out, and Ruth clung to his brawny shoulder as the ship accelerated. "Now this one. And watch those instruments."

His right hand came back slowly, and Ruth felt a tingle in her stomach pit. She turned her head for a glance out of the open door. The water below seemed to be racing toward them. Deneen pushed the lever out, and the floor pressed the soles of their bare feet. "Did you notice those last two dials?" asked Deneen. "One is an altimeter, the other a speedometer. That's a start. That central one—the big one, puzzles me. Watch that red line shift, away from or toward the black hub in the middle."

"But where are we going?" asked Ruth.

"North," said Deneen grimly, twisting to look for the sun. "Move out, Ruth, slowly. Keep away from that door. Take a look from the windows. All I can see from here is sky and water."

He listened to her feet splashing in the pools of water behind them, as she obeyed instinctively. He was still very rigid. The levers were not pushed to a fifth of their slot length, but the speed they were making was terrific. He could see wisps of greyish clouds ahead of them, swoop over and past.

"If something goes wrong with this thing, it's our finish!" he muttered. "All I can do is stay here like a fool. Wonder what keeps her on an even keel? And that center thing must be a compass."

Ruth came back. "The shore is almost out of sight, directly behind us. The sun is a little to the right. There's a window in that suitcase compartment. On both sides nothing but water, Alan. Not a trace of land."

"This must be open ocean," growled Deneen, undecidedly. "And how big an ocean we don't know."

"Alan—if something goes wrong, over water, miles from shore—"

"We're done for," admitted Deneen. "But what shall I do? Head back? How? I don't know how this thing turns. Wait!" he suddenly cried. "Wait a minute!" Twisting to look at the woman, he had felt the levers turn in his hands, and the ship joggle queerly. Slowly, cautiously, he made experiments. "Like those motorcycles we knew," he informed tersely. "Double principle like an airplane stick. Only here you twist your fist. Watch."

Holding the levers motionless, he twisted his right hand. The ship veered smoothly. Reversing the grip turn, it veered the other way. Ruth stepped past Deneen, and pressed her face to the beveled glass over the driving platform. Out of the corner of her eyes, she saw whitish smoke spurt out from the side each time Deneen twisted his right hand. She called excitedly.

"Sure!" agreed the man, his stiffness beginning to pass. "On the twists one lever turns her, the other lifts and drops the nose. Right twist of the right hand sets off the gas at front, maybe at rear, too, but on the opposite side. I'd bet on it. Left turn of the right hand sets off the other front and rear sets. Simple as A B C. Now the other. Hold on."

Ruth held on. Deneen's confidence grew. "Right twist of the left hand sets off rockets at front and rear, top in front, bottom at back. So we head down, smooth as silk. Left twist of left hand turns on gases front and rear, bottom at front and top at back. So she noses up, like a dream. Now while twisting, in any combination, you can pull or push on the levers, increasing or slowing speed, gaining or losing altitude. "Boy! O, boy—what a rig!" he marvelled. "What a rig!" He had forgotten everything but the feel of tremendous power beneath his hands. "This thing is foolproof. Anybody can drive it."

"You can turn now, Alan," the woman reminded.

"I don't know!" Deneen growled his indecision. "Why should we turn? For months, Ruth, we've headed north. Like animals we were, at the end, but going north. Following these ships. I heard voices in my brain, sending me on. We crossed hundreds of miles on foot. Now with this thing, why should we go back?"

"I'll look around, Alan," she replied calmly. "Whatever you do is all right."

"Keep away from that door!" warned the man, turning to watch her go back down the aisle. A wave of tenderness swept over him. "Maybe I will, Ruth, turn back to land for the night. Don't worry." A frown creased his brow as he again looked ahead, and up at the instruments over the window. "This water can't be bigger than the Atlantic was, or in extremes, the Pacific. And if I give this bus all the levers can go—" he whistled softly as a trial push increased the thin high shrieking, and the wind roar in the doorway to the left. "But what makes 'em fall like they do? What supplies the gas discharge? How long will it last at high speed? And how in the devil," he muttered, "does it keep the floor below, and the ceiling above, without a tilt? This hull is as round as a cigar."

CHAPTER X

A Message!

THE solution came to him after a time. Ruth was coming back. "Say," called Deneen. "Hold these levers a while. I want to look at something." He turned and voiced surprise. The woman was dressed in a pale grey, clinging uniform.

"I found it in one of the larger bags in that compartment. There are others there too." She was smiling at him, the mass of her hair fringing a tanned oval face. "They'll fit you. This material stretches like rubber. It's an amazing thing."

"Hold these levers, like this," instructed Deneen. He changed places with Ruth. "No danger. Just hold them." Passing a hand over her shoulder, he shook his head wonderingly. "Me for this stuff. On or off the ship. I've been thorn-scratched long enough."

"Alan!" Ruth called after him without turning her head. She was holding the levers rather tightly. "There's a lavatory on the right, past the racks. Some liquid soap."

"If there's a razor, I'll shave!" he replied, edging very cautiously to the open door. "Don't move those levers!" he warned. Lying down on his stomach he inched forward till his head protruded through the oval door. The wind tore at his hair. He stayed in that position for some time, looking along the ship's hull. Below him, far down, spread the flat surface of the sea. The ship was as steady as if it rested on solid land. Deneen inched back, and rose. He went to Ruth.

"If we get to any of those fellows, I'm going to shake 'em by the hand, provided they let me do it. I don't care if they have got bald heads, small mouths and shoulders. They've got brains, and plenty of them. Know what keeps this thing on an even keel?"

She shook her head.

"Those slots along the side. Soon as she tips, before we could feel it, gases kick out. Automatic. This thing can't tip. You can turn it at any angle without banking at all. Once I block that door, just in case, we're as safe in here as in—well—as we were in the woods, anyway. Hold those levers."

It seemed to Ruth that he took a long time in returning. The sky ahead was murky. Her arms ached with tension as she held the levers. She smiled her relief when Deneen's voice sounded behind her.

"All togged up." He took the controls from her. Ruth stepped back and admired. The man's powerful body was encased in the greyish material she had found in the bigger room.

"This stuff is a tailor's dream," he commented. "It fits anybody, and doesn't bind at all. And I ducked my head plenty. I feel clean. But not a razor."

"Alan." She was very serious. "What can it all mean? Those hairy men—can there be men like that off the earth? Weren't they savages—the sort we read about back in New York?"

Deneen watched the sky ahead. "Storm!" he muttered. "We're heading right for it. Those fellows, Ruth," he continued, "were like no race of earthly savages. They looked like reconstructions of the Neanderthal man. They had no bows and arrows. Stone spear tips. I saw one two inches from my face. The riddle is deeper than ever. Men below the earthly standard, and men, mechanically anyway, pretty well above it. Watch those clouds," he continued. "They look ugly. Wonder if I'd better go over, in, or below 'em?" he asked casually.

She pressed close to him. "I understand, Alan. You're talking more than you have for months. To keep my mind off things. You won't discuss the real question. But how do we know if these rocket men will be friendly? They shot at us back on the mountain by that other sea. They nearly killed you and left you to die!"

"That was an accident. The more I think over what happened, the more I am convinced that those fellows on the mountain were pretty well scared. Remember what those hoppers looked like, Ruth? Enough to turn anybody's head. And the mountain slope was alive with them. The men just shot rockets on general principles, and caught Gregory when he jumped into the midst of them."

Deneen's left hand pushed out and twisted. They veered away from a mass of dark clouds directly ahead, accelerating speed. Lifting the ship's nose, Deneen ploughed through streamers and bunches of the dark vapors. Ruth clung tightly to his shoulder. The sunlight came again to reinforce the illumination from the ceiling and walls. They both felt a shortness of breath.

"Hold these levers like this, Ruth," Deneen instructed. "We're above the clouds. Flying is a baby's game in this thing. I want to block that door. Just noticed the way it's jammed on that single hinge."

Ruth kept the ship at her altitude and pace. After a time the feeling of giddiness passed. They were shooting over a tumbled, greyish world of vapors, at frightful speed to judge by the wisps and patches of higher floating cloud that plunged by, against the window and off.

She could hear Deneen grunt behind her. He was pulling at the jammed door. Suddenly the thin, high shrieking of gases and the wind roar dulled. She turned her head to see the aperture closed. A neat oval panel had fallen into place, swinging from a single hinge at top of the framing. Deneen kicked a pin into place at its bottom.

"There you are! Snug as a nest." He relieved Ruth at the controls. "No—I believe they wouldn't harm us, the builders of this boat, Ruth. That affair on the mountain was out of the ordinary. Maybe they left us not out of malice but fear."

"I was too dazed to see, Ruth said slowly. "I was afraid you were dead. When I looked up, after bending over you, they were pushing Uncle George through a door, something like that one, probably. Jim was nowhere in sight. The ship started almost at once, lifting straight off the slope. It seemed they tried to kill you."

"OH, they tried, all right. Probably took us for enemies. But whatever they shot me with wasn't an improvement over earthly artillery. My head was hit by something big—too big to cut a little groove. But a shell, any large missile, would have killed me, not glanced off, if it even approximated the velocity of the projectiles we knew in the world of disarmament conferences."

"Perhaps these men have never waged war," suggested Ruth, falling in with the man's mood. Alan Deneen had truly come back, speaking through the bearded face of the usually silent hunter with whom she had wandered for apparently endless days.

"That's an idea," said Deneen. "But what are they doing in *this* world? War is the only thing this world knows, Ruth. Every living thing has either fled from us or tried to kill us, our own kind as well as that jerky breed back south. How could these men have evolved here without combative instincts? By the beard of Moses!" he muttered, as if struck by a thought. "Not if they came from that moon! Not if they came from that moon, Ruth! That hunch of mine is growing!"

He almost let go one of the levers animated by the thought. "I'll bet those fellows do come from up there! How else explain the signal we saw, except as the work of some mighty intelligent and mighty powerful race of beings? And here, under my control, is another instance of intelligence and power. Why shouldn't there be a connection? There doesn't seem to be any other. The slice of this world we've seen is utterly primitive, and that goes for those playboys who attacked us this morning. Yes, Ruth," he said confidently, "this ship and this miracle cloth are from some other part of the sky. And I'd rather

mix socially with the emigrants than the natives. We came from somewhere else ourselves."

"But are you sure we are going north now, Alan? And what if the ships take another course over this water?"

Deneen stiffened a bit. "They don't," he remarked trenchantly, looking at an angle through the observation window. "There's one of 'em now, sailing pretty, off to right of us. And it's closing in."

Ruth moved slowly to the window. Floating over the ragged cloud floor that sped along below them was a suspended, cylindrical hull, apparently barely moving with relation to their own ship. Its nose was edging around. Deneen did not shift the levers. Rigid, the grey-clad woman watched. The drifting hull came closer.

"Alan—the windows! See the faces! The thing is full of people!"

Deneen shook his head. There was a queer turmoil in his brain. At first he attributed it to the altitude. But the inside of their ship seemed to hold intangible strains, invisible presences, voices, querying voices that were inaudible to his ears. "Ruth!" he said, rousing himself. "Wave your hand!"

Ruth waved, a hesitant smile on her features. The faces in the other ship remained at the windows, a long row of them, pale faces topped by bald heads. She saw this detail as the long hull drifted quite close, and held its position not twenty feet away.

"Alan—they don't respond. They just stare at me. But I hear voices—voices in my mind." She stepped back suddenly. "Alan—I'm afraid!"

Deneen fought for clear thought. "Get that bow of mine, and the arrow-quiver," he instructed tersely. "I put 'em on the third seat, right side. Bring 'em here." He shook his head again, a physical response to the strange, strained turmoil in his mind. It had increased as he spoke to Ruth.

The woman came back. "Loop that quiver over my shoulder," instructed Deneen. "Put the bow by the door. Now, hold tight. I'm going to the other side of that fellow."

He waited a moment, then pulled rather suddenly back on the left lever. The upper part of his body jolted violently forward, over the driving desk. Outside, the long hull to the right shot ahead with amazing speed, trailing its plumes of white vapors. Deneen twisted the right lever, holding it motionless along the slot. The ship ahead and to the right crossed over to their direct front and off to the left. Deneen pushed the left lever out, fighting to keep his balance as the ship accelerated. "These fellows slipped up on the way they fixed the shifts!" he muttered. "Push and fall back—pull and go forward—dead wrong."

The ship ahead was approaching again, to the left now.

"Ruth, come here and hold these handles!" called Deneen. "Don't move them at all. I'm going to open the door, and talk to them. Make signs, anyway."

"Alan!" Ruth was afraid. "Why can't we turn around? These people are strange! Perhaps they are not people at all. I feel as if they are casting a spell over me—I feel presences around us."

"Telepathy," guessed Deneen. "I'll bet on it. They're trying to talk to us, that's what they're doing. Hold these levers."

The door was hard to open. Deneen's great arms moved it up till the whistling wind broke through a growing slot, and the pressure eased. He pushed it up till it hung over its single pin, and rammed the end of his bow against it, holding it. The wind nearly blew him back. But he forced himself a bit closer to the doorway, and waved his free hand. Directly opposite now, the ship sailed along, occasionally struck by cloud wisps moving with terrific speed. The row of faces remained in the windows. Deneen kept waving. After a time he saw hands move against the glass.

"Sure they're friendly!" he called gladly to the anxious woman behind him. He tapped his chest, indicating himself, then the ship he was in. Repeating the signs for emphasis, he paused a moment, then indicated the other ship, concluding the whole procedure with a shrug of the shoulders and a questioning expression. "Where are you people going?" he yelled for his own satisfaction.

THE faces remained in the windows. But Deneen saw, clearly etched in his mind, a tumbled range of mountains, a river valley opening to a sea, and narrowing to a gorge further back in the hills. He saw faces, an agitation of faces, that were not part of the scene registered upon his eyes. Saw one face that stiffened him.

Stepping slowly back, he let the door drop. The roar of the air and the rocket gas shriek dimmed at once. Ruth was asking anxious questions.

"Tell me—did you see anything—think of anything, just now?" Deneen's voice was tense.

"Yes," she replied as he took the driving handles from her. "I saw mountains, smoke, faces."

"That settles it," decided the man. "These people are trying to convey something to us. That's nothing at all," he continued as the woman protested her uneasiness. "We ought to expect anything in this world, Ruth. But there's something else. That place I saw just now, I've seen before. Back in the jungle, when the first pictures came to me, when I thought I was going crazy. And just now I saw your uncle's face again. Meredith, sure as life!"

The woman looked out of the window at the long hull outside, foregrounded on the cloud mass that scudded by below them. "Alan—can it be—?"

"Why not? These people, this sort of people, carried off Gregory and your uncle. They can transmit thought. Some of them have been trying to tell me that Meredith is alive, trying to tell me where to find him. Ruth, I know it sounds fantastic. But everything's been so since we woke in that wrecked laboratory. Telepathy isn't really strange. It's the best, the only explanation. I was driven, Ruth, driven in the jungle. We never would have moved as we did, every day, of ourselves. Someone drove us on!"

The uneasy fear left Ruth's face. "Perhaps Jim and my uncle are safe, somewhere beyond this water. Alan—we may find them—talk to them again!"

"And get an answer to lots of questions." Deneen's right hand twisted the lever it gripped, veering the ship back toward the other, that had widened the gap between them. His glance, going instinctively to the instruments above, noticed the movement in the larger central one.

As an hour, two hours passed, he tried experiments. Sending the ship to right, in center of the face a red line would creep toward the circumference. "Say, watch that," he finally instructed the woman. "My first guess, that it

was a sort of compass, was probably right. That's what guides these fellows. They're holding that red liquid right in center."

Ruth was at the windows. She was calmer now. "They're increasing speed, Alan. And I seem to hear voices saying hurry—hurry! That's fancy, of course. They can't talk English."

"Well—I hear the same thing," replied Deneen. "It's just the thought, and we shape it into English ourselves. Of course we may be all wrong. But I'm sticking with those fellows." He pushed the left lever gradually. The other ship kept receding. Deneen pushed harder on the driving handle, his face grim. Cloud masses, upthrusts from the solid floor of vapor below seemed to leap at him from the distances ahead, and vanish. But the ship's interior was absolutely free from vibration of any kind.

"This," observed Deneen, "is a cockeyed world. Everything is of two kinds. These levers are placed wrong, because the driver has no support to check the movements of his body when he slackens or increases speed. A simple thing, that any ordinary human would have provided for, totally missing. But the ship itself is a marvel beyond human powers of engineering.

"If we're not going close to three hundred miles an hour," he said a moment later, "I'm seeing things. Those clouds don't pass—they dissolve."

Ruth moved down the aisle. The grey suiting she had found included bootlike extremities that sloshed through the water pool by the door without admitting a trace of dampness to her enclosed feet. "Alan!" she called back. "The other sun has risen. See the color on the clouds?"

"If we're heading straight north, both suns will be traveling closer to the horizon behind us in a few hours. We can't be too far from the pole of this globe right now."

"They are close to the horizon, Alan," Ruth answered from the rear, her voice animated, though a bit forced. "I thought it was due to our altitude. How silly!" She came back along the aisle, peering through the front glass to the other ship. Deneen had cut down the distance between them.

The cloud buttresses, pinnacles and peaks protruding from the mass below took on fancy colors as time passed. Deneen twisted the left lever and pushed it out, pointing the ship's nose up, and accelerating its speed. He pushed out with his right, lifting it above a higher bank of vapors, following the example of the craft ahead of him. "This is a cinch, Ruth," he muttered as she came to stand beside him. "Practically perfection."

"Alan—I hear those queer voices again. Not such a turmoil now. Clearer."

"So do I. They're still saying hurry, and something else."

"Danger!" she breathed. "Danger! I heard it clearly."

"There's no doubt now, Ruth," said the man soberly. "These repeated things can't be coincidences. Well, I'm with them. We should be a bit accustomed to danger by now."

"The clouds are breaking!" Ruth said quickly, pointing. "Look! The sea—far down! Land—Alan! Shore. Mountains!" Her voice was peaked now. "Mountains, Alan!"

"Right!" replied the man calmly, and watched the ship ahead nose down through the breaking clouds.

"They're heading for that land, Ruth. Here goes."

CHAPTER XI

Into the Maelstrom

HOLDING tightly to Deneen's shoulder, Ruth watched the black line of shore creep toward them, opening, spreading into detail. The flat sea was clearly marked out from the land that rose abruptly, shouldering the sky directly ahead. Valleys appeared, long gorges, separate peaks, a few touched with streaks of snow. But these were in the background. The nearer hills, not so lofty, moved below the ships. Deneen tipped his craft so that it rode bow downward in the sky, giving him view through the beveled glass. "This is mighty awkward," he muttered. "But she rides. Why didn't they set this desk further back and give view below?"

He veered the ship abruptly, then soared with it after the one ahead in a circling climb. The sea-line shifted slowly below them. All the panorama of the smaller hills revolved as on a gigantic turntable. Deneen, tense as he was, yet noticed the two suns when they swung into his line of vision. Separated by a wide space of sky, they were but a few degrees above the horizon, and the red orb, gigantic in its setting mists, was no more blinding to his vision than the moon of the night before. Deneen realized that most of the short day had passed.

He swung his gaze back to the ship outside. It began dropping, without spiral or flourish, and Deneen, tensing his stomach muscles, pulled in the right lever. Ruth gasped and clung to him. They sank like a plummet.

Deneen watched the altimeter. A short hand swung back and was moving toward zero. And the red line on the central instrument was now far out from center, vertically inching down toward the lower edge, a bit to the right. "I don't understand these things," muttered Deneen. He tipped the marvelously responsive ship again, to get view of the ground below. Scudding aslant their field of vision was the other rocket ship. Deneen twisted his ship, and dropped it faster. The hills opened up, passed below them, clad in sombre greens and browns. Ruth suddenly clutched the man's shoulder.

"Alan!" Her voice was strained again. "That place! The place I saw. The river!" Deneen's jaw set as he kept the nose of the ship down in a long dive. They could hear a thin scream of air from the door he had forgotten to lock at the bottom. A bit to their right the tumbled land came to the sea, and at one place a wide gash marked the outlet of a river valley. The gash narrowed to a thread further in among the higher hills. In every detail the view fitted the mental images they had seen.

Deneen halted the dive, picking the ship out of it and shooting up, as if they were thistledowns in a high wind. "No use going in blind," he said painfully to the gasping woman. "There's something queer going on down there. Four or five of these boats are circling over the lower valley. The place is full of smoke."

He watched her face close to his shoulder. "You're ready to chance it, Ruth, once we look the place over? Land and see what's what? Or shall I head into the hills? We could camp somewhere, and scout back to this place on foot. But I hear those voices," he con-

tinued. "A strange tumult in my brain. Calling—calling. Like a great far chorus of despair."

"Whatever you decide, Alan," the woman said slowly, her face troubled. "I—don't know what to say. I hear the calls, too. It's uncanny."

Deneen veered the rocket ship. He swung in a sharp curve, and for a time headed straight toward the horizon of sea and sky where the low riding suns, one of them setting, sent shafts of red and blue light through cloud masses in the distance. Then swinging again he headed down for the mouth of the valley below.

Smoke rose and swept to meet them in billowing columns. Greyish smoke. Through the rifts they caught glimpses of flame. Deneen, his jaw set, nosed the ship down and through the valley, lifting it up at terrific speed, barely missing another cruising hull that appeared and vanished like a wraith in the twist of smoke columns.

"Whew!" he whistled. A sensation of heat stifled him. They were riding high again. "Tell me, what did you see?" he asked tersely. "To me, it seemed as if the woods on both sides the river were burning. Closer to the water, on the right, were scores of ships like these in neat rows. At one end of this landing field, or whatever it was, rose a spreading building of yellowish concrete, or stone."

"Yes," said Ruth quickly. "And near the river mouth, along the shore line, hundreds of boats or rafts."

Deneen nosed up, and to the right. He swung inland. "I'm going to get far upstream, drop low over that gorge, and follow the river out. That way—" he suddenly lurched, then pushed out at both levers. The ship had dropped with sickening suddenness, and for a moment Deneen had the clear impression that the power was dead beneath his hands. A hard jolt that threw the girl away from him, and the renewal of the rocket screaming, with an intangible sense of control in his fingers, loosened the hand of gripping dread which had fastened about his heart. "Whew!" he whistled again. Sweat stood out in little globules on his brow. But his voice was quite calm as he lied.

"AIR pocket, Ruth. Some downcurrent from the higher slopes to our left." Ruth said nothing. She was very pale. Deneen wondered if she knew. The rocket propulsion had gone dead. In his mind's eye Deneen saw again that first ship that had fallen on a mountain thousands of miles behind them, and another that had dropped to the shore of the northern sea. There was something wrong with the marvelous craft. He pushed tentatively upon the levers, and was reassured by the lift and drive of the ship. It was manageability perfected.

"Just an air pocket," he repeated, heading for the black thread of the gorge below. Through the right windows could now be seen the open sea. The cloud banks in the distance were lower, obscuring the blue sun. The red one had set. Below them the hills were black and dull brown, and the river gorge a twisted thread. Deneen went lower.

"What are those things on the left side, down there?" he asked, anxious to divert Ruth's mind from the incident just passed. "See them on the slopes?"

"Smoke," she answered, peering through one of the windows. "Smoke columns." Deneen dropped steadily. The earth rose in gigantic cliffs and buttresses to the left of them. "Men, Alan!" the woman suddenly called. "Hundreds of them! Going down the mountain. See—on that level—hundreds of them."

Deneen swung down. He edged by the vast slopes. "The drum beaters, by Methusalah! Those trails are full of them. Going down! Down toward the river!"

He veered sharply away from the mountainside, and cruised over the narrow cut of the gorge, turning fully and dropping still lower. Directly ahead now, beyond a few gradual curves, the valley widened to its outlet on the sea. The smoke from its lower ends was a drifting grey cloud against the background of water, and Deneen caught glimpses of the circling rocketships, still hovering over the rows of their fellows on the ground. Nearer, in the narrower part of the gorge, more smoke was rising, in thin, white streamers. Deneen swept over once, then increased speed, and circled back to repeat his whole procedure. Keeping his eye on the moving red line in the center instrument, he asked tersely.

"Ruth—did you see below? A city! Pillared buildings—connected by arches, a long white walk along the river—fires—men!"

"Yes, I saw," she answered. "And at the lower end a machine like a crane, with other men around it. And I hear the most anguished calling in my mind."

"Danger!" muttered Deneen, reckless now, cruising very close to the mountain face. "The drum beaters are attacking that city. That's it! The moon men, or whoever the ship builders are, are being wiped out. Their ships are back in the wide valley, being burnt up. They're trying to block—"

"Alan!" the girl cried. "The men near the crane are running away! Look—in the bigger valley—thousands of those others coming up!"

Deneen sank down in a long glide. Details of the drama began to stand out clearly. Below them was an incredible city, or section of city. Over wide streets, in courtyards back of monstrous columns, moiled a mass of humanity, beginning to break and flee, in thin streams, toward the wild chasm upriver. Further down, below an outjutting of material that looked like a wall, which narrowed the gorge to little more than the river width, opened the wider valley, full on both banks with a restless, advancing, smoke-wreathed horde.

Deneen heard calls in his mind, despairing, wild calls. "Walor! Walor!" like a chanting repetition. "What can *I* do?" he asked, as if to a tangible plea. "Look, Ruth. That compass—it shifts the red line every time I head away from that city. The red creeps toward that city!" He felt sweat all over his body. "What a mess! I ought to get down there—do something!"

"Alan—look at the mountain, on the right!" cried Ruth. "A face! A man's face, carved in rock." She lurched as the ship dropped. "It looked like—Alan!" she suddenly screamed, trying to go to him. "What is the matter?"

Grim-lipped, the man moved useless levers. They were dropping with sickening speed. The rockets had gone dead again. Deneen jerked the handles frantically. But the gases did not start. The river seemed to leap toward them—a jutting wall—a confused mass of brown people that scattered too late.

DENEEN seemed held in a clamp. His left arm was around Ruth, holding her close; his wide, unblinking gaze on the upshooting confusion of men and river and outjutting wall. The accelerating speed of the fall kept him back from the desk, and his right hand, still firmly gripping the lift lever, had drawn it back to the edge of its slot. When it seemed that faces, hundreds of staring wild faces, were against the very glass in front of him, his muscles jerked the levers by purely reflex action.

Blindly, from habit, he pushed out. Then he ducked, clasping the woman in both arms, curling over her as a shock threw them both off their feet, in instinctive effort to save the soft form he loved from the crashing bedlam about them.

The rocket gases had caught with a shrill screaming. Water and earth sprayed up from the tortured ground. The long hull of the ship seemed to strike some invisible barrier, and go glancing and skipping horizontally down the gorge. The violent shock of arrested descent, nullifying the automatic stabilizers, was rolling it momentarily from side to side. At full momentum of that terrific slide it struck a mass of squat and skin-clad men pouring around the edge of the wall, and a crane-like machine some thirty feet from the river.

The great grey bulk ploughed through the barrier as if flesh and bone were paper. Its rear end struck the crane-like machine, toppling it over, but not deflected sufficiently by that impact, it scraped the thick wall and veered off, the slot rockets screaming continually as they resisted and then abetted a violent roll.

Like some animate, devilish thing the mechanical monster spun and thrashed over the water and among the fleeing, scattering, yelling horde attacking the city beyond. The abrupt shock of a stopped descent, and the subsequent blow against the wall, had thrown both levers in along their slots, and from rear and bottom rocket gases ripped out, spraying huge columns of water as the ship's tail swung over the river.

Dead and dying marked the path of that monster projectile, and the whole slope and river bank was a bedlam of confusion. Scarcely had it swung broadside before the ship jerked away from the water. Something had gone wrong with its mechanism, for the power operated in spurts, lifting it, crashing it against the mountain face. It inched up, gouging stone and soil with its shattered nose, throwing plumes of ripped-out ground behind it.

Boring through the obstruction it rose in a series of lifts, slid off a rocky outcropping, and went hissing into a grove of trees. The tough growths held it quivering, as the spasmodic rocket discharges jerked the gray hulk forward and up.

Down the river innumerable men ran at a shambling gait, terror in their cries, pointing back to the smoking, scarred hillside. And within the narrower gorge upstream, others stood irresolute, gazing at the turmoil below. About them a grey dusk was beginning to fall, stealing among monster collonades and under the vast archways of stone that ornamented one side of the gorge where stood bald men, with slim shoulders and great eyes, in the depths of which were commingled fear and hope.

Deneen held Ruth as in a vise, his shoulders hunched to take the shock of their tumbling. The world seemed exploding. They were tossed and thrown with terrific force, but the man's senses held to coherence. Pitched into the aisle, he rolled over, hunched between the seats and braced powerful legs and back to wedge himself and the woman securely. The whole tossing structure turned completely over, but the spin was too rapid, and Deneen's leverage too stronge to dislodge them. They righted again. Sulphurous smoke, choking, burning the man's nostrils, filled the interior. Violent jolting, a smashing and ripping at front, then a final plunge. Something held the ship, though it heaved and quivered to the thrust of the erratic gases.

Deneen squirmed out into the aisle. The woman in his arms was limp. Fear tortured the groping man. Her head had struck something in their helpless rolling—he had felt the shock, glancing off his arms. The interior of the ship was full of yellowish, acrid smoke. The hull was broken up, and whatever chemical combination supplied the rocket mechanism was finding outlet into the long cabin. Deneen heaved to his feet, his tortured lungs sounding their imperative call for clean air. Stumbling forward with his burden, he fell. The forward part of the ship was filled with dirt and rocks, forced through the broken front windows. On hands and knees, shifting Ruth's limp body before him, Deneen groped for the door.

Something tangled his left arm. He tried to shake free, and felt the thud of a light object swing back and strike his face. It was the longbow he had placed beside the door, swept across by the avalanche of dirt. Frantically Deneen clawed at the ground. If the obstruction had covered the oval panel—a grunt of relief escaped him as his fingers touched a beveled wooden edge. The entering mass of rock and soil had pushed the unlocked door aslant the aperture. Deneen lifted it with one powerful wrench, and pushed the dirt through the opening. Traces of clean, cool air revived his failing senses.

He reached back and dragged Ruth to the aperture. Two minutes later, with the woman in his arms, his eyes smarting and almost useless, the man moved in a clump of trees already aflame in their blanket of needlelike leaves. Even in his dazed condition Deneen noticed these things, as they fell again, and he groped along the ground. Pine needles—his fingers ran through them—the smell of them alleviated the reek of gas in his nostrils. Dangling from his arm, tripping him as he rose, was the strung bow.

He passed his head through the string and shifted the weapon along his back. Vision was coming to him, and the dim outlines of the tree clump, the pitch of the slope, registered on his mind. Lifting Ruth again, he headed up the mountain; thought of the men by the river an unconsciously operating motive of his action. Ruth was beginning to move.

CHAPTER XII

The God of the Savages

SCRAGGLY bushes grew above the trees, and here and there the steep slope was pocketed with hollows. Deneen stopped on a bit of level ground. He knelt, peering at Ruth's face. A swelling over one temple, an angry bruise, gave evidence of her hurt. She was groping to consciousness. Deneen lifted his head. Beneath the shock of rapidly succeeding events was a pressing voice of reason warning him, reminding him of the horde into which

the ship had fallen, of the city further back in the gorge. The man peered around with his aching eyes.

His first impression was of vastness, of being far in the bowels of the earth, looking up Titanic upheavals of stone cleft against a darkening strip of sky. The change from height to depth increased the impression. The gorge, which from above had looked like a narrow thread, was overshadowed by colossal shoulders of rock. To right of Deneen, where it opened to the lower valley, it was comparatively light, and he saw a wild confusion of men—saw the great concrete structure around which were rows of rocket-ships, and the billowing clouds of smoke from a forest fire, touched with blue from the low sun over the sea.

But farther up the shadows of a swift dusk were thickening over the river, a river flecked and streaked with red, that swept over mangled bodies, and the yellow mud of a terrible churning. Over the wall, to left of him, was a sight which brought Deneen to his feet.

Streets—streets of smooth white paving, lifted high and running parallel with the river, the ones farther toward the gorge wall visible through an amazing array of columns. As far as the eye could see, all that side of the gorge was built up, the rough rock hidden by one continuous structure of whitish substance, partly resting upon, partly dividing the monster collonades. And the whole connected mass was lighted by lines of fire with clearly defined borders, circling the columns, ornamenting the face of the solid walls, hanging like blinding ropes over the streets.

Far up the gorge, men were trickling down the white roadways, hesitantly—there were scattered groups of them in front of the buildings, and beneath the structure in the columned plazas. The fiery tracing revealed them clearly to Deneen, bald humans, dressed as he and the woman were. "Ruth!" he called hoarsely: "The rocket people! The city!"

Then, even as he moved to assist her to rise, was he conscious again of the cries for succor in his brain, dulled a bit now as if the uncanny voices were doubtful of him. "Walor? Walor?" they seemed to ask. From a point well up the gorge, stabbing out of the white walls, an eye of blinding light appeared, and a long searching shaft struck the river, lifted to illumine faintly the far clouds down valley, swept over the right side of the chasm picking out little groups of men edging down the trails and finally passing over the tree clump and the broken rocket-ship, it lingered, shifted a bit, and settled upon Deneen and the woman. Ruth blinked in the fierce glare. "Alan!" she moaned. "Where are we? I hear voices questioning."

"The rocket people, Ruth," he answered tersely, as an instinctive desire to run, to take the woman and hide, passed from him. "We fell into the gorge—fell into the thick of a mighty big fight!"

He was conscious of a sense of menace, of danger, apart from the ghostly calls in his brain. The dusk was thickening. The searchlight shifted, and he saw clearer. A ruddy glow touched the clouds in the lower valley, and across the blood-red line flitted the hulls of the rocket ships that still circled over the great, flat buildings below. Nearer, the growing gloom was punctured by a thousand lights, flaring red lights that moved and shifted over a confused mass of faces, lights that cast flickering illuminations and shadows over the flowing stream.

On the side walls of the gorge, less steep where the river widened, other shifting ruddy lights were inching down. Far up, on the very summits of the walls, glowing like great red stars against a darkened sky, the tiny torch fires, spaced regularly, ran back into the hills, upgorge, over the white city of the rocket people. A dull, incessant throbbing—monotonous, savage filled the air. From the shifting horde in the lower valley rose a wail that the vast walls bandied about and multiplied and made eerie. "*Ai*—Aye!— *Ai*—Aye!" an endless singsong chant.

"Ruth!" Deneen said tersely. "Let's get down!"

Sharply it came to him that the bald people, grouped there among their great structures, were helpless. The wailing of thousands of throats was a savage dirge, a predatory singsong like the call of some hunting pack closing in on its quarry.

Deneen swung the dazed woman up in his arms. "I know which side *I* take, right now. I was almost sorry for the beggars, the way that ship ripped into 'em, but—" his voice trailed off as he began to descend.

"Alan! I can walk. Put me down!" Consciousness was coming to Ruth. "Alan—that terrible crying, like beasts—"

Deneen stopped. Shadows moved toward him, coming up from the river. He heard a confused yelling.

Through the man's bruised body crept a glow of anger, the slow stealing of a lust to fight. The long lance of the searchlight stabbed the dusk again, playing over the river, and showed him what manner of creatures cut off his way to the city.

"Ruth—stay behind me!" he ordered. "Keep back!"

THE long rocket ship, in its terrible skid through the gorge, had cut off a knot of the shambling men on the further bank, leaving them unharmed, already past the wall, but no longer supported by the body of the fleeing horde below. By the laws of primitive psychology, they should have been paralyzed with terror, but apparently the wild frenzy of the chant which rose throughout the canyon had lifted their fear. Deneen pulled the long bow from his shoulder. The quiver of arrows, nearly full, still crossed his back. "We're going down!" he said grimly. "Stay close behind me."

The searchlight played fully upon the river, and the squat men who swam across came lurching, dripping and grotesque, up the slope toward Deneen with the eagerness of wolves. They carried clubs, crude spears, and lumps of stone. There was no plan nor order to the attack, merely blind impetuosity. Deneen's sudden rage grew to cold purpose. He continued to move down, and the great bow, bent and loosened in his practiced hands, drove swift messengers of death into the motley, bestial company.

They broke and ran, after a few moments of paralyzed surprise, broke and ran down the incline, and downstream toward the main body of their fellows, leaving three sprawled on the brightly-illumined ground. Now from the vast horde below there rose a swelling cry of rage, a long drawn howl of mass ferocity. Deneen could see the twin columns of men along the river, move like huge snakes in the dusk, move forward. "Come on, Ruth!" he called.

The searchlight followed them down. Then stones be-

gan to fall, single rocks, small landslides, and finally a huge mass that roared and growled and crashed with terrific jar into the river-bed not twenty yards ahead of Deneen and the woman, covering the outjutting wall, damming the waters so that they curled over, and raced furiously in the narrowed bed.

"Come on!" growled Deneen, fairly lifting the woman along. The searchlight played over them, over the huge mound of soil which blocked the river. Deneen clambered up, swinging Ruth alongside. Missiles came out of the dark; thrown rocks, spears that glinted their obsidian points in the lance of light. All the vast horde down-valley was in motion.

Deneen turned on the crest of the mound, and sent bitter, humming arrows to halt the forward fringes of the pack. Then he ran with the woman down the opposite incline, the friendly searchlight shifting to illumine the way. Water in the narrowed river boiled around his waist, tugged and pushed at him as he carried the woman across. They gained the raised, level street, stood dripping and cautious, a man and woman of the steppe and jungle among the habitations of strangers. But the mood passed. Memories of another world, a world of monster buildings, of lights and sound, came back to them with a rush. For among the groups coming to meet them was an individual who ran and waved his arms and yelled. The wild welcome in the shout came to both above the bedlam in the gorge.

"Deneen! Deneen!"

Ruth cried out from a full heart. "Jim Gregory! Jim Gregory—alive!"

There was no time for overlong expression of the emotions that surged in them. Gregory kissed Ruth. He gripped Deneen, shook him. On his wasted features was a great gladness, like that of a man who has wandered for long in strange regions and sees familiar ground ahead. "God! it's good to see you, to hear speech, human speech!" he almost wept.

"Where's Meredith?" asked Deneen as he gazed around him, at people with great, sad eyes; the vast archways of decorated and foliated stone beyond.

"Back in one of those buildings. He sent me to see if you were coming. Telepathy—O, what an awful mess of things!" Gregory's eyes were a bit wild. "We knew you were coming—you and Ruth. But Meredith, is racing time, trying to complete a death ray or something. No chance," he shook his head, looking at the advancing horde below. "We're done for, Deneen. Finished!"

Deneen's gaze swept the whole scene. A group of the rocket people were about him, slim creatures with large, deerlike eyes and perfectly bald heads. Myriad voices were in his mind—he could feel wonder, surprise, questionings. Louder came the query—"Walor? Walor?" One of those nearest, a female, to judge by the contours of her bust, reached out and touched his beard. "But these people are *human!*" Deneen said sharply. "Human beings! How—"

"Come this way," advised Gregory. "Those devils up there," he pointed to the gorge top, "are starting to roll rocks." They moved in a body up the street and below the vast arches. Deneen marvelled. "What's all this mess about?" he asked looking back, as another avalanche roared down into the gorge. Past the earth mounds were the advancing thousands of squat men, a double menacing snake winding up along the river, ruddy-colored in the light of the torches. "What is it—war?"

"Wait," said Gregory in his jerky manner: "Listen!" He turned to the group around them. Others were moving out from among the colonnaded squares, issuing from doorways, stepping slowly down curving stairways. Ruth moved as in a trance. Passing below the great arches opening to the street, they were in a fairyland of form and grandeur and white light. Gregory called to the rocket people. He pointed toward the gorge. Pointed up. "The face!" he said, moving his lips in exaggerated manner. "Put your searchlights on the face."

DENEEN saw and felt the fear that greeted the request. None moved. But Gregory said, "Wait!" And Deneen saw the shaft of light that had guided him across the river now play along the wall of the opposite slope. "This way," said Gregory. He led them, followed by the curious bald people to an open courtyard from which could be seen the sky and stars. "Stay there in shelter," he warned. "They're dropping rocks from above. Look! at the opposite wall."

The shaft of light swept across the wall and settled on an outthrust. Then through the gorge the crying of the skin-clad, advancing horde climaxed in a raging chorus. The distant drum tattoo increased in rapidity, like a savage protest.

"Sacrilege," said Gregory half wildly. "They go mad when we shine light on that face. It's God to them, Deneen—a face of stone hung hundreds of feet in the air—overhanging us—a face chiseled four million years ago!" He laughed in hysterical outbursts. "Look at that face, Deneen—the face of a god—the reason we will soon be clubbed to death, torn to bits. You remember that face—every good American does! Well, it was chiseled out of granite four million years ago!"

Deneen's hawk eyes gazed unbelievingly. Ruth cried out. "I saw it, Alan—saw it as we were falling! We've never left the earth."

"No," said Deneen slowly. "We've never left the earth." High up over the gorge, part of the vast wall, was an outthrust of stone. It was balanced far forward over the white city. At top it formed the shape of a human head. Its front had features, eyes, nose and mouth. Deneen knew those features. It was a carved face of George Washington, hewn in the rock, that looked down over the incredible city of the rocket people.

CHAPTER XIII

Doomed

"FOUR million years!" muttered Gregory; and Deneen, looking sharply at him, noticed a strange light in his eyes. His words were not rational. Gregory was either mad or rapidly becoming so. Around them stood the bald people—in groups and lines they were to be seen through all the great colonnaded corridors, at the entrance to every building. "Take me to Meredith!" Deneen said evenly. "And get some of these fellows over there by the road, to stop that bunch coming up valley."

Gregory shook his head.

"We're finished Deneen. How you got here I don't know. Black magic, perhaps." His eyes were round, his

voice a whisper. "But you did the impossible only to come to your death. We can't hold off these devils. The mountains are swarming with them. And these people can't fight!"

"Can't fight? Why not?"

"They have no combative instincts, Meredith says. They have no weapons, except some clumsy rocket guns built into several of their ships. All the ships equipped with them are down-valley. They couldn't be used here anyway. We're bottled up, Deneen. There's no chance for us. I've seen it coming for days—for long days!" he suddenly cried raising his hands.

The soft-eyed people shrank away. Deneen put his arm around the crying Ruth. "Gregory," he said sharply. "Do as I tell you! We've got to hold that mob off, till—" he shrugged impatiently. "Where's Meredith?"

"Jim!" the woman implored Gregory. "Please, Jim! We don't understand!"

But something was snapping in Gregory's mind. Deneen noticed again the emaciated features of the man. His hair was queerly trimmed. Grey, pliant cloth concealed the condition of his body. But his eyes burned strangely. Some terrible strain, culminating in his seeing Ruth and Deneen, had scraped Gregory's nerves to the point of hysteria.

"I tell you these people can't fight!" he cried. "Moon people! They come from the moon! They can't run—can't move. They can't even *talk!* They just stare at you and you hear them crying for help in your brain! My God! They're driving me crazy! Don't you hear them, Deneen? Crying for help?"

Deneen backed away. He looked down the gorge. The front of the horde in the valley was closer now, advancing steadily. The savage singsong chant reverberated from the rocky walls. Slowly Deneen turned and studied the great buildings about. He noticed now that the silent people moved slowly, as if their limbs were weighted.

"Moon people!" he muttered, and now the strangeness of it, of the correctness of his own guess, swept over him. "Moon people! Can they understand?" he asked with abrupt directness of Gregory. Something had to be done. Time was short.

"I don't know!" muttered the other, calming. He seemed to be trying to get control of himself. "Deneen—it's been hell! Meredith says they can understand him. He knows what they tell him. But I'm—I'm finished!" he groaned. "It's been hell!"

"You can help me!" said Deneen evenly. "Take Ruth and bring her to some safe place, out of danger. Then get Meredith. I have to see him right away. Tell these people to throw that searchlight of theirs on the water by that mound—the avalanche mound. Tell them to put every light out! Jump! Tell 'em I'm boss here!" He turned to the group around him, prodding his chest. "Alan Deneen!" he said very distinctly. "Ruth!" putting one arm around the woman. "Friends! Fight! Do what I say!" He paused a moment, and strove to make out the puzzling sound in his mind. "Walor!" he said, grey, hard eyes searching the faces about him. "Walor!"

He saw a general gladness in the soft eyes, looks of relief. The feel of emotional approval was like a tangible sea about him. In his mind a great crying rose, welcoming, surging up in waves of joy. "Walor! Walor!"

"Well—I'll be—" Deneen pulled Ruth close to him. "Little woman—I can't make this out. This city is Paris and Venice and New York combined. In this hole—made by people that can scarcely move. Perhaps your uncle knows the answer to all these riddles. Find him, Ruth. I have to stop those drum beaters." He held her close, scarcely aware of the onlookers, held her face in his great hands. "Ruth—this is my fault. We might have stayed away."

"Alan!" She clung to him. A terror grew in her eyes. The full sense of the menace about them struck her. "Alan—they'll kill you! Can't we escape? Can't all these people escape?"

"Take care of her, Gregory," said Deneen a bit hoarsely. "She's been hurt. Get her back into the buildings somewhere. "What's that?" he added sharply. A rumbling smash had sounded from beyond the colonnades.

"Stones!" replied Gregory with wide eyes. "Big stones! They roll them over the brink of the gorge. They began last night. We're finished, Deneen! There they come!" he pointed. "There they come! The beast men! They'll club us to death—torture us—"

"Find Meredith!" cried Deneen, his throat swelling to a rush of blood. "Ruth! Go with him!" Without another word, acting by instinct, he began to run, back toward the brilliantly-lighted front street overhanging the river. At its lower end a straggling vanguard of skin-clad forms were edging doubtfully along, waiting for the great body of their fellows. Seconds of delay would spell the end of the city in the gorge.

(To be concluded)

What Is Your SCIENCE KNOWLEDGE?

1. What are the two extremes of the visible part of the spectrum of electromagnetic waves? (Page 11)
2. How far is Mercury from the sun? (Page 15)
3. What is known about the erratic motion of Mercury? What are some of the conclusions drawn from it? (Page 15)
4. What is the effect of radium taken internally? (Page 16)
5. What living beings exhibit electromagnetic properties? (Page 35)
6. How large is the sun? How fast is it moving? In what direction? (Page 36)
7. How long is the Venusian day (Page 37)
8. What is the list of solar planets in the order of their distance from the sun? (Page 36)
9. What are the moons of Mars? How large are they and what are their distances from the primary? (Page 37)

The Invisible City

(*Continued from page* 13)

that threatened to involve by swift degrees the whole extent of Ciis.

Gazing spellbound, Furnham had almost forgotten the serpentine rays. Too late he saw that one of them was upon him. He leaped back, but the thing caught him, coiling about his limbs and body like an anaconda. There was a sensation of icy cold, of horrible constriction; and then, helpless he found that the strange beam of force was dragging him back down the slope toward Ciis, while its fellow went on in pursuit of the fleeing Langley.

In the meanwhile the spreading disk of fire had reached the tower from which the ray emanated. Suddenly, Furnham was free—the serpentine beams had both vanished. He stood rooted to the spot in speechless awe; and Langley, returning down the hill, also paused, watching the mighty circle of light that seemed to fill the entire basin at their feet with a soundless vortex of destruction.

"My God!" cried Furnham after a brief interval. "Look what's happening to the slope."

As if the force of the uncanny explosion were now extending beyond Ciis, boulders and masses of earth began to rise in air before the white, glowing maelstrom, and sailed in slow, silent levitation toward the men.

Furnham and Langley started to run, stumbling up the slope, and were overtaken by something that lifted them softly, buoyantly, irresistably, with a strange feeling of utter weightlessness, and bore them like wind-wafted leaves or feathers through the air. They saw the bouldered crest of the acclivity flowing far beneath them; and then they were floating, floating, ever higher in the moonlight, above leagues of dim desert. A faintness came upon them both—a vague nausea—an illimitable vertigo; and slowly, somewhere in that incredible flight, they lapsed into unconsciousness.

The moon had fallen low, and its rays were almost horizontal in Furnham's eyes when he awoke. An utter confusion possessed him at first; and his circumstances were more than bewildering. He was lying on a sandy slope, among scattered shrubs, meager and stunted; and Langley was reclining not far away. Raising himself a little, he saw the white and reed-fringed surface of a river—which could be none other than the Tarim—at the slope's bottom. Half incredulous, doubting his own senses, he realized that the force of the weird explosion had carried Langley and himself many miles and had deposited them, apparently unhurt, beside the goal of their desert wanderings!

Furnham rose to his feet, feeling a queer lightness and unsteadiness. He took a tentative step—and landed four or five feet away. It was as if he had lost half his normal weight. Moving with great care he went over to Langley, who had now started to sit up. He was reassured to find that his eye-sight was becoming normal again; for he perceived merely a faint glowing in the objects about him. The sand and boulders were comfortably solid; and his own hands were no longer translucent.

"Gosh!" he said to Langley. "That was some explosion. The force that was liberated by the shattering of the Doir must have done something to the gravity of all surrounding objects. I guess the city of Ciis and its people have gone back into outer space; and even the infra-violet substances about the city must have been more or less degravitated. But I guess the effect is wearing off as far as you and I are concerned—otherwise we'd be traveling still."

Langley got up and tried to walk, with the same disconcerting result that had characterized Furnham's attempt. He mastered his limbs and his equilibrium after a few experiments.

"I still feel like a sort of dirigible," he commented. "Say, I think we'd better leave this out of our report to the museum. A city, a people, all invisible, in the heart of the Lobnor—that would be too much for scientific credibility."

"I agree with you," said Furnham, "the whole business would be too fantastic, outside of a super-scientific story. In fact," he added a little maliciously, "it's even more incredible than the existence of the ruins of Kobar."

THE END

The Power Satellite

(*Continued from page* 69)

centrate that hasn't been ultimately refined. Perfectly legal, eh!"

He led them to a barrel that stood against one wall. It was like many others there—a thick lead alloy cylinder such as were used during various processes in refining. Graxon tipped up the heavy cover, and a choking puff of ozone welled up out of the half-filled barrel.

The officers looked inside. They saw a thick gray mud that seemed possessed of a life of its own.

"It's all there, and I'll deliver it some day when I get around to it," Graxon said.

"But why," Belts asked, trying to fit together the various pieces of the puzzle, "did you fool the Authorized Representatives?"

"Because Snaide was one of them. I had to convince Snaide that the slop I was delivering to him was the real stuff—for *her* sake. What better way than to short the Authorized Receivers?"

Graxon's manner became less dourly amused, became sad.

"And yet, it was for nothing. When Snaide is returned to Mars for trial, Mesuen will hear where Glyda is, and—"

"Hadn't you heard?" Waite interrupted, "Snaide is dead. Glyda will make her home on Earth. You too, sir, if you will accept a diplomatic passport."

He did not mention what was uppermost in his mind; the fact that inexorable loyalties no longer stood between him and Glyda. That thought he would cherish with jealous secrecy until he could share it, very soon, with Glyda alone.

THE END

Under Arctic Ice

(*Continued from page* 59)

To my elation the motor started at the first turn of the propeller; and as I pulled on my greatcoat I experienced a thrill of hope and confidence that reason told me was entirely unjustified by my chances of being able to fly in the patched-up, untested machine, or by my being able to soar out of that dark, starlit opening far above, even if I could leave the ground.

I nosed her out into the road and with a farewell wave to faithful Barbon taxied down the smooth way.

Almost at once we took the air, and I circled over the little shop and saw my friend composing himself, or rather disposing himself, in a posture to denote violence, in preparation for the coming of those who were searching for me.

At the same moment I observed that it was growing lighter. Although it was still early in the evening, the Tovarts were no doubt starting up the daylight-producing machinery in order to facilitate the search for me.

I should have been very glad of daylight for my own purposes had it not been that I was afraid of the effect daytime conditions might have on the upward draft of air.

I had learned that the same machines that produced the light also sent out an ionizing current which created an ionized stratum of atmosphere, thus serving to imprison the warm, artificially-heated air and prevent its being carried up and dissipated.

This air layer divided the warm air from the cold in the same manner that our own stratosphere divides the warm air near the earth from the much colder strata above, or as the discontinuity layer of the ocean separates the warm surface waters from the chilly depths immediately below.

In the evening when the machines were stopped this layer was quickly dissipated allowing the warm air to rise, creating a great draft up and out of the open world. Later, as the interior of the cone cooled off and the volume of the air decreased, a new supply of fresh cold air was pulled in from outside and stability reestablished.

It was this rapid upward rush of warm air that had wrecked my plane when I inadvertently flew over this sunken world; it was this same upward draft that I now depended upon to help me make the hard climb to the top.

Holding her nose as high as I dared, I gave the motor all the gas she would take and spiralled upward. Up and up I went in ever decreasing circles, while the steady upward pressure of the air lent speed to my wings.

Meanwhile the light increased. All the soft hues of twilight and the brighter colors of daybreak spread out beneath me and were reflected back from all sides with the added glories and beauties of the prismatic effects of the ice walls.

The now far-away bell which so often had called the Tovarts to morning devotions was sending out a chorus of alarmed notes, as if summoning the faithful to avenge the wrongs of a god who had been wantonly outraged.

No patch of starlit heavens ever looked more beautiful to distracted mariners lost at sea than did this jeweled, bespangled circle above my head as I drew near to the top of the cone.

At last, still buoyed up by the upward rush of air, I burst out above a world of clean white snow and saw the moon smiling down above the horizon.

With a great feeling of relief like that of one who awakens from a fiendish nightmare to find that all is well, I turned the nose of my steed toward the south and fled across the white reaches of the encircling vastness toward a better and a happier land.

THE END.

The Message from Mars

(*Continued from page* 45)

as he was in command of the American operations, and responsible for disposing of the Japanese Navy.

Once more I got into touch with Borara. The old gentleman seemed to be very pleased with himself. "Mr. Cooper," he said, "will you give my thanks to every Government, who was kind enough to confer its honors upon me. I would like to see each insignia separately so that a sketch could be made, and duplicates produced here."

"It is vanity, I know, but I must confess that I am very proud of these honors. As a matter of fact the whole of the Martian nation are rejoicing at the termination of wars on Earth. Peace is rapidly coming to the Universe.

"Now I am pleased to say that the Scientific Council of Mars have elected you as a member of the Council. This is one of the highest honors on Mars.

"As soon as all the excitement is over, you and I can carry on with our scientific work. Both of us have a good deal to learn. I would like to converse with some of your prominent astronomers, and obtain their co-operation in the study of the universe. Although we are looking at the same object, we are looking at it from different points of view, and if we compare our results, we are sure to arrive at the truth.

"Before we part for tonight, I have an important message to deliver. The King of Ahrah wishes to 'meet' your Sovereign."

I assured Borara on His Majesty's behalf that he would be happy to converse with the ruler of Mars.

His Majesty the King graciously paid a visit to my laboratory at Whitehall, and the two great rulers exchanged thoughts for nearly three hours.

And now I think I will close my narrative for the time being. I am not an experienced writer, and this effort of mine proved to be the most difficult one I have ever tackled. I shall now devote the whole of my time to studies under Borara's guidance, and to my family, whom I have badly neglected of late.

What do you think Bill is doing? Why, the obstinate fellow is going to Cambridge to study. He won't give up that precious university education of his.

THE END

Science Questions and Answers

This department is conducted for the benefit of readers who have pertinent queries on modern scientific facts. As space is limited we cannot undertake to answer more than three questions for each letter. The flood of correspondence received makes it impractical also, to print answers as soon as we receive questions. However, questions of general interest will receive careful attention.

The Obstacles to Space Flying

Editor Science Questions and Answers:

I see in your November issue that you have a complete list of all the known elements. I have made quite a collection of scientific data, so if you will consider space flying and make a complete list of all of the obstacles to be overcome, I will be very grateful.

Norman Maxuire,
Atlantic City, N. J.

(It is not possible to go into any detail in discussing the obstacles to space travel, but a list of them and a brief mention of their significance can be made. The first obstacle is that of a sufficiently powerful fuel, one that for each pound of its weight supplies 20,000,000 foot-pounds of energy. No such fuel is now known. The most powerful fuel now possible of use is a mixture of liquid hydrogen and oxygen which provides 5,000,000 foot-pounds per pound when used with 100% efficiency. Naturally the fuel that is used must be capable of control, so that it may be shut on or off in order to guide the flight of the ship in space.

The second obstacle is the danger of colliding with meteors. Recent investigation and inquiry from astronomers has shown, however, that this danger is somewhat overrated and that on a trip to the moon there is only a chance in a million of being hit.

The third obstacle is the danger of exposure to disastrous bombardments of cosmic rays or other extremely short wavelength radiations in space. Such emanations are deemed to be destructive to animal tissue, as radium emanations are, and it would normally be impossible in space to have the walls so thick that the emanations would be shut out. The ascension of Professor Piccard to a height of ten miles above the earth, where radiations should be quite intense, and his report that he suffered no ill effects, gives hope that the danger from cosmic rays has been overrated.

The fourth obstacle is the danger of being roasted or frozen in interstellar space. In other words, a means must be devised to maintain the ship at a comfortable temperature even though it be continually in the full furnace glare of the sun. Incidentally here, equipment must be possible to furnish an adequate supply of breathable air, food and water within the ship. These obstacles are not deemed to be very serious, but nevertheless they exist.

The fifth obstacle is the possible grave effects on the human organism of an absence of gravitation in space during the greater part of the journey. Plans for the rotation of the ship about its longitudinal axis, so that it spins like a rifle bullet, have been proposed. In this event, an artificial gravity would exist within the ship, due to the resulting centrifugal force.

Then there are the problems of navigation in space in three dimensions, and the delicate problem of making a landing upon the world to which one is going. The making of a safe landing on the airless moon would be especially difficult, and as yet no satisfactory means have been suggested. Landing upon Mars is a less serious proposition, for Mars has an atmosphere; and to land upon Venus would be still less serious. But the control of the space ship so that its speed of several miles a second, when approaching its destination, can be slowed sufficiently to ensure a delicate landing, would require the highest kind of skill.

Further information on this fascinating subject can be obtained from "The Conquest of Space" by David Lasser, president of the American Interplanetary Society. This book is the only authoritative book on space flying in the English language.—*Editor*)

The Brightest Stars

Editor Science Questions and Answers:

Will you kindly publish in your excellent department the names of the ten brightest stars in the heavens and in what constellations they can be found?

James B. O'Hara,
Milwaukee, Wis.

(The ten brightest stars, with their magnitudes (or relative brightnesses) and the constellations in which they can be found, are given below. Two points should be noted. The apparent brightnesses of stars are given as their magnitudes. The smaller the magnitude the more bright the star. Thus there are stars so bright that their magnitudes must be expressed as less than one—as minus quantities. The magnitude or apparent brightness has no relation to the actual brightness of the star. Of two stars one may have an apparent brightness twice the other, yet the less bright star may in actuality be hotter or larger. The distance of the star from us must be taken into consideration in judging its real brightness.

The second point relates to the constellations. The constellation merely means the part of the sky in which the star can be found. The ancients traced out in the sky figures of one kind or another such as dogs, fish, bears, bulls, etc. and thereby named the constellations according to the figures they represented. The constellation that a star is in has no relation to its distance. Two stars may be in one constellation yet one might be two or ten times as far away from us as the other.

Star	Magnitude	Constellation
Sirius	-1.58	Alpha Canis Majoris
Canopus	-0.86	Alpha Carinae
Rigil Kent.	+0.12	Alpha Centauri
Vega	0.15	Alpha Lyrae
Capella	0.21	Alpha Aurigae
Arcturus	0.24	Alpha Bootis
Rigel	0.34	Beta Orionis
Procyon	0.45	Alpha Canis Majoris
Achernar	0.60	Alpha Eridani
Agena	0.86	Beta Centauri

—*Editor*)

The Planetary Moons

Editor Science Questions and Answers:

Could you publish the names of the satellites of the planets of the solar system and give some idea of their sizes?

Frank N. Stine,
Mahonoy City, Pa.

(The following is the list of the more important satellites of the solar planets and the best available information as to their sizes. Naturally, since many of the satellites or moons do not appear in our best telescopes as discs, but are seen as merely points of lights, their size can only be measured indirectly by their apparent brightness and their distance from us. In this list the moons are given in the order of their distance from the planet. The rings of Saturn are not included here.

Planet	Satellite	Diam.
Mercury	none	
Venus	none	
Earth	Luna	2160 miles
Mars	Phobos	10-20 miles
	Deimos	10-20 miles
Jupiter	Io	2000
	Europa	2000
	Ganymede	3500
	Callisto	3350
	Nos. V to IX	50-100 miles
Saturn	Mimas	400
	Enceladus	500
	Tethys	700-800
	Dione	700-800
	Rhea	1100
	Titan	2600
	Themis	Unknown
	Hyperion	300
	Japetus	1000
	Phoebe	150
Uranus	Ariel	(700
	Umbriel	(to
	Titania	(1400
	Oberon	(miles
Neptune	Triton	3000
Pluto	none	

Practically all of the satellites revolve in the same direction as the planet, from west to east, and practically all revolve in the plane of the planet's orbit about the sun, that is around the planet's equator. There are however a few exceptions. Phoebe, the tenth satellite of Saturn; the four moons of Uranus; and Triton, moon of Neptune, revolve in a retrograde direction from east to west. The four moons of Uranus also revolve in an orbit nearly 90 degrees from the plane of Uranus' orbit about the sun.—*Editor*)

(*Continued on page 90*)

Shewing the differences in the orbits of the moons of Jupiter and Uranus. The moons of Jupiter revolving about the planet in the same direction as the planet revolves, and in the plane of the ecliptic is quite usual. The moons of Uranus are inclined 70 degrees to the ecliptic and revolve in a retrograde direction.

READERS

If you like "Science Questions and Answers" in this magazine, you will find in our sister magazine, EVERYDAY, SCIENCE AND MECHANICS, a similar department, greatly expanded called "The Oracle." Look for it, you science fans!

IN this department we shall publish every month your opinions. After all, this is your magazine and it is edited for you. If we fall down on the choice of our stories, or if the editorial board slips up occasionally, it is up to you to voice your opinion. It makes no difference whether your letter is complimentary, critical, or whether it contains a good old-fashioned brick bat. All are equally welcome. All of your letters, as much as space will allow, will be published here for the benefit of all. Due to the large influx of mail, no communications to this department are answered individually unless 10c in stamps to cover time and postage is remitted.

White Gods Who Ruled

Editor, WONDER STORIES.

Congratulations on your April issue of WONDER STORIES and on your Spring edition of WONDER STORIES QUARTERLY! Your magazine has certainly improved since your first issue was put out, nearly three years ago. All of the stories in the April issue were splendid with "50th Century Revolt" by Arthur G. Stangland taking most of the honors.

A word about "The Last Woman" by Thomas S. Gardner; it was a truly wonderful story, with a clever plot, ingeniously worked out.

The QUARTERLY certainly "hit the spot" with that remarkable tale of J. M. Walsh, the "Vanguard to Neptune." Clifford D. Simak scored in that marvelous story of his, "The Voice in the Void."

If WONDER STORIES and WONDER STORIES QUARTERLY are signs of prosperity let us hope that we never have another depression and that prosperity will always be with us.

Did you know that the base of an immense pyramid was recently uncovered in Egypt supposedly constructed by a race of white "gods" who ruled in the days when Rome was not as yet an empire and was not as yet known! Why not have a story based on an expedition sent to explore this symbol of a vanquished race and perhaps have them discover beings in a state of suspended animation or at least to find inscriptions or wonderful machines left by these strange people! Assuredly such a story would meet with your reader's approval.

Fred J. Walsen, Denver, Colo.

(It may be a case of mental telepathy between Mr. Walsen and the editors, but he will find in the Summer QUARTERLY "Beyond Pluto" by John C. Campbell, a story in answer to his request. Young Mr. Campbell has outdone himself in this story.—*Editor*)

A Machine for Killing

Editor, WONDER STORIES:

I have just finished the April number and honestly feel that, even disregarding entirely all the stories but two, it is as fine an issue as I've read in many a day. After reading the last two lines of "The Final War" I couldn't help wondering a little at the remark of Mr. Smirni—that this story is "absolute trash" appealing to "barbarous imbeciles." There is a certain sadistic type of mind, of course, that revels in scenes of physical torture and bloodshedding; but with that class we are little concerned.

There is a more prevalent type of mind, I am sure, to be found among the readers of WONDER STORIES—the mind that seriously and sanely wishes to see and understand to the fullest extent just what the horrors of war mean to humanity. And Mr. Spohr has afforded them the opportunity to make this study in "The Final War" with his simple, direct style that gives such a telling effect.

Time and again the author scales the heights. The terrible sense of vague wonderment as to when the end will come—the unhuman haste of man and woman to make their appointment with Death—the appalling matter-of-fact treatment of what is presumed to be one of the most sacred and tender relations of life, marriage—the revolting manner in which the virus of war changes the kindly professor into a machine for killing—all these combine in a great story to produce a smashing denunciation of war. Mr. Spohr lacks, perhaps, the facility and polish of the first-class writer; his method of handling a multitude of characters is not smooth. But to call his story "absolute trash"—well!

Fully as fine a story, though in a different realm of science fiction, and lesser in scope, is Mr Hilliard's "Reign of the Star-Death." Here again is realism in its most poignant form. The parallel between the moral struggle (whether or not to kill ten thousand to save millions) and the actual scientific struggle against the ray is very cleverly handled. These conflicts, together with the more obvious one of troops versus civilians, are all drawn to a head with a good deal of skill. As Mr. Lasser himself recommended the preceding story, "Death From the Stars," I read this one with more than usual care. And in both there is a wealth of good sound thought of which no man need be ashamed.

With two such stories in a single issue, then, it's no wonder that WONDER STORIES is so popular with discriminating readers. When I compare what little I've done for the magazine with these stories, it makes me at once ashamed and proud. Ashamed at my temerity at offering my stories when the editors can get things like the above; proud that in a sense, at least, I am a colleague of Mr. Hilliard and Mr. Spohr.

A. K. Barnes,
Los Angeles, Calif.

(We think so little of Mr. Spohr and his "Final War" that we are going to persuade him to write a sequel. Our readers want to know what happens to the civilization that was left as a wreckage from "The Final War." Will men profit by their mistakes and recreate a new and better civilization, or will they again build in order to destroy? Perhaps Mr. Spohr will tell us.—*Editor*)

Need to be Socially Introduced

Editor, WONDER STORIES

I have been reading the Gernsback magazines for some years; but it is only recently that I have been reading WONDER STORIES as a regular thing.

John Bertin's "Brood of Helios," opening your May issue, is one of the best stories I have had the good luck to come across. The introduction to the story under Mr. Bertin's picture states exactly what I wish to say about the story, so I will not bore you by paraphrasing it. The best part of the story is the fact that it has an interesting opening. So many writers seem to think that the reader cannot grasp the story unless each character is socially introduced.

"Vanishing Gold" by Capt. S. P. Meek was interesting, but the characters were stilted.

"The Venus Adventure" by John B. Harris was on a par for humanness, with "Brood of Helios."

"Why the Heavens Fell" deserves mention for its startling conclusion.

I like WONDER STORIES very much, for its authors all seem to be young, and in consequence do not usually become very technical. This pleases me, for I like to read a story and not a collection of scientific formulas.

Robert McDonald,
Rochester, N. Y.

(Mr. Bertin and Mr. Harris represent a new type of science fiction author, who believe that their stories should be reasonable and plausible as well as imaginative and human. They are the rising stars in the world of science fiction.—*Editor*)

ON LETTERS

BECAUSE of the large number of letters we receive, we find it physically impossible to print them all in full. May we request our correspondents, therefore, to make their letters as brief and to the point as they can; as this will aid in their selection for publication? Whenever possible, we will print the letter in full, but in some cases, when lack of space prohibits publishing the complete letter, we will give a resume of it in a single paragraph.

Staggering Atomic Energy

Editor, WONDER STORIES:

The question of atomic power, brought up by Mr. Hugo Gernsback in his latest editorial, is a most intriguing one. Many authors insist upon using it in their stories, yet not one has ever attempted to describe in detail the possible sources of this energy. Even Mr. Gernsback merely speaks of "a vast inherent power locked up in the atom." Two possibilities have been suggested. One is that the atomic energy consists in the centrifugal forces of the electrons' rotation about the nucleus. Another source is the attractive force between the nucleus and the planetary electrons. Neither of these is very plausible, however.

The amount of energy contained in the atom may be better visualized when we change the energy given off by an ounce of radium during its half-life period, given by Mr. Gernsback as 1,720,000,000,000 horsepower-seconds, to electrical units. This amount of energy would suffice to keep a 100-watt electric lamp burning on a 110 volt circuit for thirteen trillion seconds, almost 4000,000 years! And this is but a small fraction of the total amount of energy in one ounce of radium.

The only logical source of such huge quantities of energy is the electrons and protons themselves. Knowing them to be unit charges of negative and positive electricity, it might be feasible to separate the electrons from the protons, group like charges together and construct a modified form of electric cell. If this could be done and the electricity properly harnessed, a few pounds of any material would make an electric generator such as has never been seen. The current provided by a one-cent copper piece would run into millions of amperes and the potential differences into billions of volts! Such figures stagger the imagination, yet that they are possible is evidenced by the facts given in the editorial.

Although it may seem fantastic, it might be possible to reverse the process and from the pure electricity to construct any element. Then will the alchemists' dreams come true and the most amazing vistas opened to the world of science.

This letter had better be ended here for it is becoming a bit too long. *Congratulations* to WONDER STORIES *on its third birthday!*

Milton Kaletsky,
New York, N. Y.

(It might be interesting to mention that Dr. Arthur H. Compton, world famous physicist, is sufficiently impressed with the possibility of releasing atomic energy that he is spending the rest of his life at the task.—*Editor*)

(*Continued on page 90*)

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SCIENCE QUESTIONS AND ANSWERS

(Continued from page 88)

The Rocket Automobile

Editor Science Questions and Answers:

1. Why is the rocket automobile not practical at the present time? If the difficulty is the dangerous exhaust fumes, would not the use of liquid hydrogen and liquid oxygen overcome that, for the exhaust product would be water?

2. Are there any more powerful fuels than liquid hydrogen and liquid oxygen? Where can I get information on the progress being made with rocket automobiles?

Harry R. Pancoast,
308 W. 28 St.,
Wilmington, Del.

(1. The rocket is not adapted to use on the automobile for two reasons. The first is that the rocket for efficiency must be applied to a vehicle designed to travel at one mile a second or more. At speeds of even 700 or 800 miles an hour it is relatively inefficient. Naturally then the speeds that would be required for automobiles are impossible to attain.

Furthermore the exhausts from the rocket are very dangerous because they would project for quite a distance, perhaps ten to twelve feet from the rocket. These gases even if not dangerous because of their constitution would be extremely hot, and therefore inflammable to anything they touched. To be within twenty feet of the rear of a rocket automobile even using hydrogen and oxygen might expose one to a lot of swiftly-moving superheated steam.

2. The only known fuel of greater energy per pound than the hydrogen oxygen mixture is that of atomic hydrogen. But atomic hydrogen is very unstable and reverts violently to the di-atomic or usual molecular form. Furthermore, the heat liberated by its use is so intense that no metal now known could stand it. So far as we know there is no real experimental work being carried on in rocket automobiles. —*Editor*)

THE READER SPEAKS

(Continued from page 80)

You See What You Want to See

Editor, WONDER STORIES

My esteemed colleague in science, Dr. Epaminondas T. Snooks, has brought to the attention of the scientific world the extreme danger of building too lofty a structure of theory on a single fact, and has found an excellent example of this dangerous practice in the May issue of your magazine—to be exact, in the inspired outpourings of one Bernard J. Kenton. While he is well known for his imaginative and impulsive digressions from the straight and narrow paths of scientific veritude, as set forth monthly in WONDER STORIES, there can be no excuse for his present blunder.

To be brief—to expose his utterly inane omission to the horrified eyes of the intelligent public—I feel it my duty to point out his glaring error with the beam of truth. It is this. Mr. Kenton utterly neglected to take into account the rather elementary phenomena of the Lorentz-Fitzgerald effect and their influence on any transmission of energy in an *n*-dimensional Space-Time continuum of the $(n-1)$th order!

Imagine such an omission on the part of a man of his ability! The results of his faulty assumptions of data are most evident. To be concise, his message, traversing Space-Time with the velocity of light, suffered the Lorentz-Fitzgerald contractions of length and time-interval. To make matters worse, they entered a fold in the universal continuum which altered their direction in the time-stream. Result! The cumulave of whose proceedings he gives a report took place in 2376 A.D., and the P. Schuyler Miller given such universal acclaim is *my great-great-great-great-great-great-etc. grandson!*

Another fact at once becomes apparent. Messrs Merritt, Smith, Williamson, Taine, et al, who, by inference, suffered igneminious defeat at my hands, are in truth the great-great-great-great-great-great-etc. grandfathers of the Merritt, Smith, Williamson, and Taine who succumbed to that future Miller. Garbo, of course, is eternal.

I am honored to be the ancestor of such a line of authors of science fiction—still, by the way, writing *for* WONDER STORIES—but with all due respect to Mr. Kenton's perspicacity I must dis-

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THE READER SPEAKS

claim the honor of utter supremacy, at least for the present. Let it suffice that the race of Miller shall evolve until in three hundred and forty four years, several months, and some odd days it shall rank supreme among the authors of the united System. At the same time, let me offer my sincerest condolences to the tribes of Merritt, Smith, Williamson, Taine, etc., who, while they may be sextuply great at present (being great - - - great grandfathers), are merely also-rans at that late date.

Even then, Merritt seems to be giving trouble. But the fact remains, in 2276 A.D., F Schuyler Miller VI is the sextuple monarch of the literary world! I can only tender my thanks, for him, to the universe in general—since there are probably some votes from the outlying stars as yet unrecorded—and repeat my warning to Mr. Keaton. Never attempt to draw radical conclusions from isolated data. My lengthy study of the properties of six different kinds of waterglass and seven different kinds of acid prove that disaster invariably follows.

Seriously, "The Time Stream" is a landmark. It requires plenty of rereading to really get at the meat. I know I am still bewildered. But I have one semi-intelligent question to ask of the world at large. Since the time-stream is closed and continuous, *is the terrible, bestial past of Ess the future of the Earth?*

And a jab at the Schwartz question. Science fiction as it exists today is unfortunately limited by the nature of its medium of expression. Wonder Stories is read by both sexes, between the ages of twelve and a hundred. Obviously, no author can present vividly and realistically for the benefit of the latter, experienced readers certain problems of future life and relations, of life in space ships and space colonies, that everyone realizes will and must occur, when sixth-grade children are reading them. They would not understand what was really being presented, anymore than they would understand a bald, literal statement of the theories of Freud and his school. Even adults get the wrong idea of that. It is not the fault of the editors or of the authors. It is simply that such things, even though they are presented intelligibly, (for I do not mean mere smut and muck-raking, but a real effort at analysis of the sort Wells might make) cannot be printed in a magazine of general circulation.

Not so long ago, they could not be printed in anything of general circulation, but a new school of frankly realistic literature has sprung up that permits such things in novels. And until publishers—literature in general—realizes, as it is beginning to do, that science fiction has possibilities ever and above romance and adventure and mild melodrama, there will be no real change to work out these problems.

What will be the real status of women in the future—in mechanistic cities and planetary colonies, during lengthy space voyages, in moon-wreck or interstellar war? What would a man, alone, on an asteroid really feel and do and think? What would be the actual relations between semi-human invaders from another planet or star and men and women on a conquered Earth? How would a world ruled by robots treat the inferior human race, if not as we treat cows and horses and other domestic animals?

At best, until very radical changes have occurred in the educational systems of the entire world, science fiction in magazines can only hint at the real major problems of past and future life, gloss them over with action and local color, and leave them for the real thinkers to dig out and discuss in private. At odd intervals an able author may break the hide-bound limitations of some publisher and give the world at large something to talk about. But you can't expect it here. The most you can look for is a new and radical idea that points the way to the real meat of the situation and leaves you to do the grubbing.

Not that science fiction can't be better in a literary way without treading on forbidden ground. It will have to improve if it is to be recognized by the "highbrows", and there are plenty of ways for it to do it—many of them ways that are being eagerly followed by experimenters in writing. But even if it isn't

(Continued on page 92)

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Be sure to read the announcement of the Six New Titles which have been added to the

SCIENCE FICTION SERIES

See Page 96 of this issue —

THE READER SPEAKS

(Continued from page 91)

Galsworthy or Conrad or Hardy, stick around and dig a little deeper than you have been, and I'll guarantee some morsel worth thinking about in almost every story that a competent editor of real science fiction prints. You needn't see it the way the author does—in fact, it's better if you don't, if you intend to do any mental arguing—but you do need to be able to see something that isn't written in black words of two syllables on white paper. If you can't read between the lines, where a great many authors are slipping in a little extra value nowadays, the chances are that you aren't bothered at all by what is written there, which should bother nobody but yourself.

This has all been said, in substance, by Dr. Breuer and others, many times and in many places before this. But the fact remains. Part of the readers can see that something extra and digest it without making a fuss over it. Another group are surprised by it, and broadcast their discovery, the way I did my time-stream question above. A third portion, one that is too big, have no desire for it and are generally satisfied with the obvious in a story, except when the real stuff crops out a little strongly and jolts them.

But there is a halfway bunch that feels the desire for more than superficial things and yet can't quite appreciate the fact that by the very nature of Man and the world they have to be hidden under thick layers of grease-paint, where some work is required to get at them. I'm afraid the discontented Mr. Schwartz is of this conservative bloc and doesn't realize it. Once upon a time a certain Mr. Lemon, in a story known as "The Scarlet Planet", tried to take a rather radical step in this direction with a very thin coating of burlesque. To some it was funny, terribly funny, and at the same time a very good portrayal of a certain type of mind and man. To others it was just a story, with quite a little rather bewildering action. To still a third faction it was disgusting—"a sex dream." Maybe it was. I have read some very good and very revealing stories written under hypnotic influence that were rather like it in some respects. But I prefer to think it funny, real burlesque and not "burleyque." You see—it's a question of what you're looking for, whether you realize it or not. You see what you want to see.

P. Schuyler Miller,
Scotia, New York.

(It is good of an author to occasionally come to the defense of the poor harassed editor. Mr. Miller, who knows the problem of trying to write for a hundred thousand people of ninety-eight thousand likes and dislikes, can appreciate what it means to select stories for the aforesaid ninety-eight thousand.

The problem of the editor is to furnish his customer with good stories, stories in which everyone can find morsels of entertainment, instruction, drama and even humor. To write such stories needs the hands of the genius, to discover the stories needs also the genius. And we are but halfway intelligent mortals.

Science fiction is like the newly born baby. Its father, mother, four grandparents, eight uncles, six cousins, twelve aunts and hordes of more distant relations all feel such a deep interest in the child that they want to have charge of its growth. So the two poor parents listen to the thunder of advice and try as best they can to raise the child to be a credit to themselves and their family.—*Editor*)

Released Upon a Gaping Public

Editor, WONDER STORIES:

Epaminondas T. Snooks, D. T. G.! Do you know what I thought when I first turned to the page with "Why the Heavens Fell" on it? Well, you see I was looking through the issue rather expecting to find the article on Paul. And when I turned over page 1379 and looked at 1381, my first impression at seeing that drawing of the author was . . . "Can this be Artist Paul ! ! !"

The May issue is extraordinarily splendid but the return of the old fashioned science fiction such as we had in the days of "The Experimenter," makes WONDER STORIES score again. How Snooky's story brings back memories of

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THE READER SPEAKS

Doc. Hackensbaw's Secrets, Fosdick and the other fellow, Hick's Inventions, etc.! If "Why the Heavens Fell" is an experiment, it has succeeded—let me tell you—beyond your wildest dreams! I'm going to ray-beam the first one that kicks about it. What a story!

So sorry I missed reading his "Monkey-Men of Meneginia." (Ha ha!) Did he play the part of one of the Monkey Men? Gosh, Frankenstein, Hyde and the Boogey Man better look to their laurels now that Snooks, D. T. G. has been released upon a gaping public. And by the way: what does D. T. G. stand for?—Doc. Toothless Gums? It must. I'll bet he was one of the Indians that welcomed Christopher Columbus at the end of his rocket flight—he looks old enough to have been!

But I mustn't devote my entire letter to Epic. There're other good stories in the issue, too. Am sure glad to see Capt. Meek again and by now the name of J. M. Walsh is becoming a not-unheard-of one. John Bertin's and the other tales are great, too, but I want to comment mostly on one other thing besides Snooks. That is Leslie F. Stone; her return to WONDER STORIES. That's about the best news in the issue. There've been other good women writers such as Rupert, Ellis, Lorraine, Harris, Black, etc. but Leslie F. Stone's work is always something to look forward to. Remember her "Men with Wings!" "Women with Wings!" "When the Sun Went Out!" and "The Conquest of Gola!"

Forrest J. Ackerman,
San Francisco, Cal.

(Perhaps because he is afraid of being ray-beamed by mistake, Dr. Snooks will not permit us to reveal his identity. But it is sufficient to say that he has an ancient and honorable history — *Editor*)

Attention, Bernard Kenton

Editor, WONDER STORIES:

I have just finished the May issue of WONDER STORIES and I'm wondering how I can contain myself until the next issue is published so that I can continue your serial, "Brood of Helios."

If you think this letter merits publication, you will do me a great favor by heading it, "Attention, Bernard Kenton." You see, for some time I have been trying to get a copy of Merritt's "Moon Pool" and I see that he mentions the book in his letter. If any of you other readers have a copy of this book or know of someone who has one, will you please get in touch with me.

Everyone else is throwing brickbats at Mr. Schwartz so I guess I'll take my turn. I'd like to meet him face to face, there are so many things I have to say and of such character that I wouldn't ask you to print them. Let it be sufficient that I have read WONDER STORIES for about four years. I led my class in Physics and was chosen to be the professor's assistant for two semesters. When graduation time rolled around, I missed being valedictorian by ¼ of a point in my average covering the four years I went to high school. In my opinion, science fiction stimulates the imagination of its readers and that, I think, is what made men like Edison.

Now to turn to the type of stories I like to see in "our" magazine. I place sound science and smooth continuity above everything. I don't believe that a complicated plot is necessary to a science fiction story, although it adds to its "readability," of course. I notice that several of the readers list the stories in the order that they appeal to them. I wouldn't attempt that, even for one issue but I want to congratulate you on your choice of two stories—two of the greatest stories I have ever read. These are "The Final War" and the "Time Stream." While reading the former I felt the corners of my mouth sagging several times and I'll admit that I stopped to dry my eyes more than once. "The Time Stream" was noteworthy for the marvelous way in which Mr. Taine handled this subject of time. Let's have more of these two kinds of stories.

Roy Meacham,
1058½ Murray Ave.,
Akron, Ohio.

(We have only one question to ask, are you satisfied yet, Mr. Schwartz?—*Editor*)

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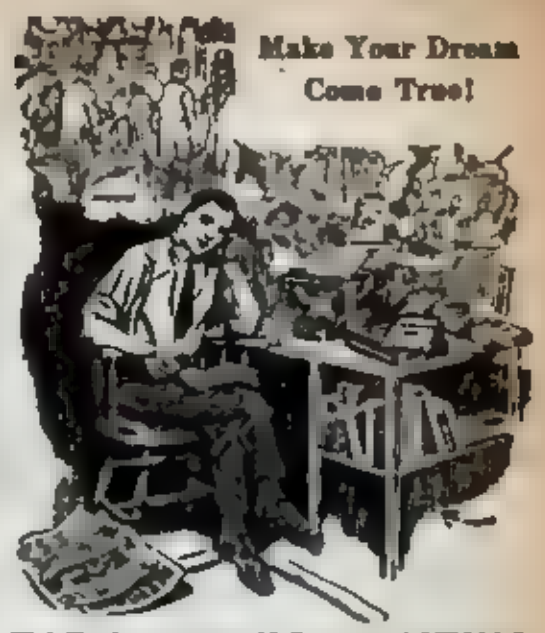

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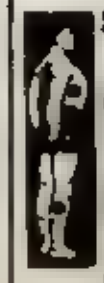

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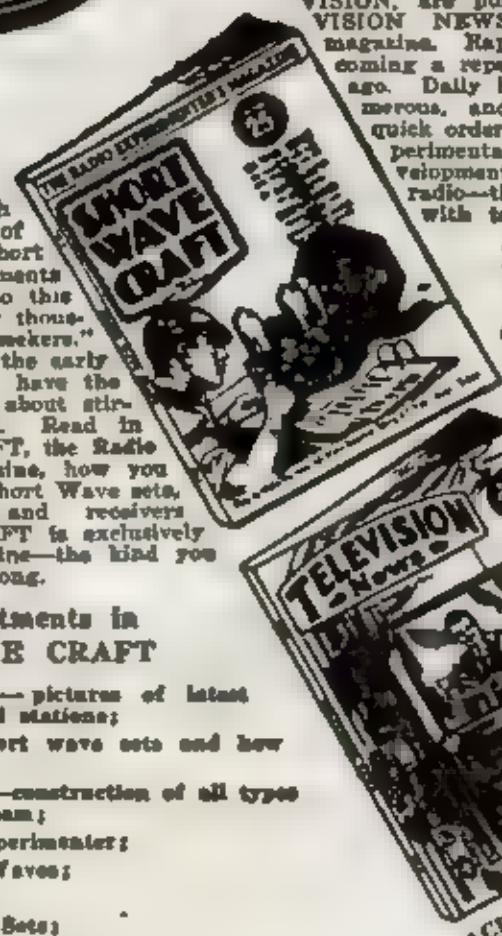
and numerous other interesting sections.



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BOOK REVIEWS

THE TRAGEDIES OF PROGRESS by Gina Lombroso. 326 pages, stiff cloth covers. Size 5½ x 8½. Published by E. P. Dutton and Company, New York. Price $3.75.

In this book the author who is the wife of Guglielmo Ferrero, the noted Italian historian, and daughter of Cesare Lombroso, the famous criminologist, launches a spirited attack against modern industrialism. She believes that our systems of mass production and industrial organization are not worth the price we pay for them, and she advocates a return to small industries, to agriculture and to the handicrafts.

The author develops her theme from a study of the civilizations of Greece, Rome and Egypt. She shows that although a crude knowledge of the fundamentals of science, of invention and engineering was common among the educated classes of these early civilizations, the mental orientation of these peoples and the condition of slavery that prevailed did not permit the development of large industries for profit. In China too, the establishment of an industrial age was feasible several millennia ago, but as in the other ancient civilizations the people preferred to study science for its own sake, for the development of morality, justice and philosophy rather than for its practical application to the mass production of luxuries.

THE BOOK OF METALS by Donald Wilhelm, 335 pages, illustrated, stiff cloth covers. Size 6½ x 9½. Published by Harper & Bros., New York. Price $4.00.

This volume is a popular, yet authentic survey of metallurgy and of those metals that have been so largely responsible for building up our civilization and the industrial age. The author shows how metallic ores are discovered, how they are mined, smelted, refined and used, and what their possibilities are. The material facts presented in this volume have been checked we are informed by a large number of mining companies and smelters.

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We learn that today there are over five thousand metals and alloys in use, each contributing potential characteristics for relieving the stresses and strains of our industrial civilization.

THE NEW CONCEPTIONS OF MATTER by C. G. Darwin, M.A.F.R.S. 225 pages, stiff cloth covers, illustrated. Size 6 x 9. Published by The Macmillan Company, New York. Price $3.00.

Mr. Darwin treats here of the New Mechanics or New Physics that is modifying many of our preconceptions of matter. Describing his hypothesis regarding the fundamentals of matter, he demonstrates the theory of the motion of waves to show how wave mechanics have originated. The principle of uncertainty, that is revolutionizing physics, the nature of polarization, and the curious behavior of atoms observed under various conditions are described in non-technical language, so far as possible. It must be realized, however, whenever an author attempts a popular work on a complicated subject, that the cooperation of the readers, by close concentration, is absolutely essential for profitable understanding. That is particularly true of the present volume.

CHILD AND UNIVERSE by Bertha Stevens, 249 pages, stiff cloth covers, illustrated. Size 6½ x 9½. Published by John Day Company, New York. Price $3.75.

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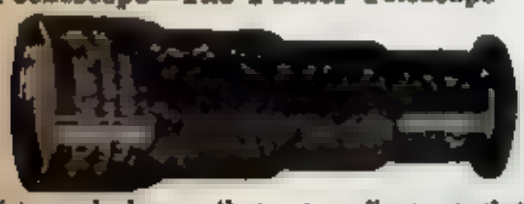

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A large number of excellent photographs of everyday objects revealing their dynamic or esthetic beauty, help to forcefully illustrate the text.

THE MACHINES WE ARE by Robert T. Hance, 380 pages, stiff cloth covers, size 6 x 9. Published by Thomas Y. Crowell Company, New York. Price $3.00.

The author, who is professor of Zoology at the University of Pittsburgh, attempts here to give a summary of our biological knowledge, as it relates to man, and to trace the development of adult man from the union of ovum and spermatozoon. The work is not only popular but is lightened with flashes of spontaneous humor. Professor Hance traces the dual forces of heredity and environment that give us our foundation of physical structure and personality and then shows how the living organism utilizes food, how it breathes and moves about, how it responds to irritable stimuli from the outside. Although the subject matter treats the human body as a mechanistic organism, the author does not want it assumed that he takes the mechanistic view of life. The book does succeed in telling in simple, non-technical language something about ourselves, and gives a hint of our physical and mental potentialities.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912.

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State of New York } ss.
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Before me, a Notary Public in and for the State and county aforesaid, personally appeared Irving Manheimer who having been duly sworn according to law deposes and says that he is the Business manager of the Wonder Stories and that the following is to the best of his knowledge and belief a true statement of the ownership, management and if a daily paper the circulation etc of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411 Postal Laws and Regulations, printed on the reverse of this form, to wit

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June

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Publication Office, 404 North Wesley Ave., Mt. Morris, Ill.
Editorial and General Offices, 96-98 Park Place, New York City

Vol. 4, No. 1 JUNE, 1932

Published by
STELLAR PUBLISHING CORPORATION
H. GERNSBACK, Pres. S. GERNSBACK, Treas. I. S. MANHEIMER, Sec'y.

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by L. A. Eshbach

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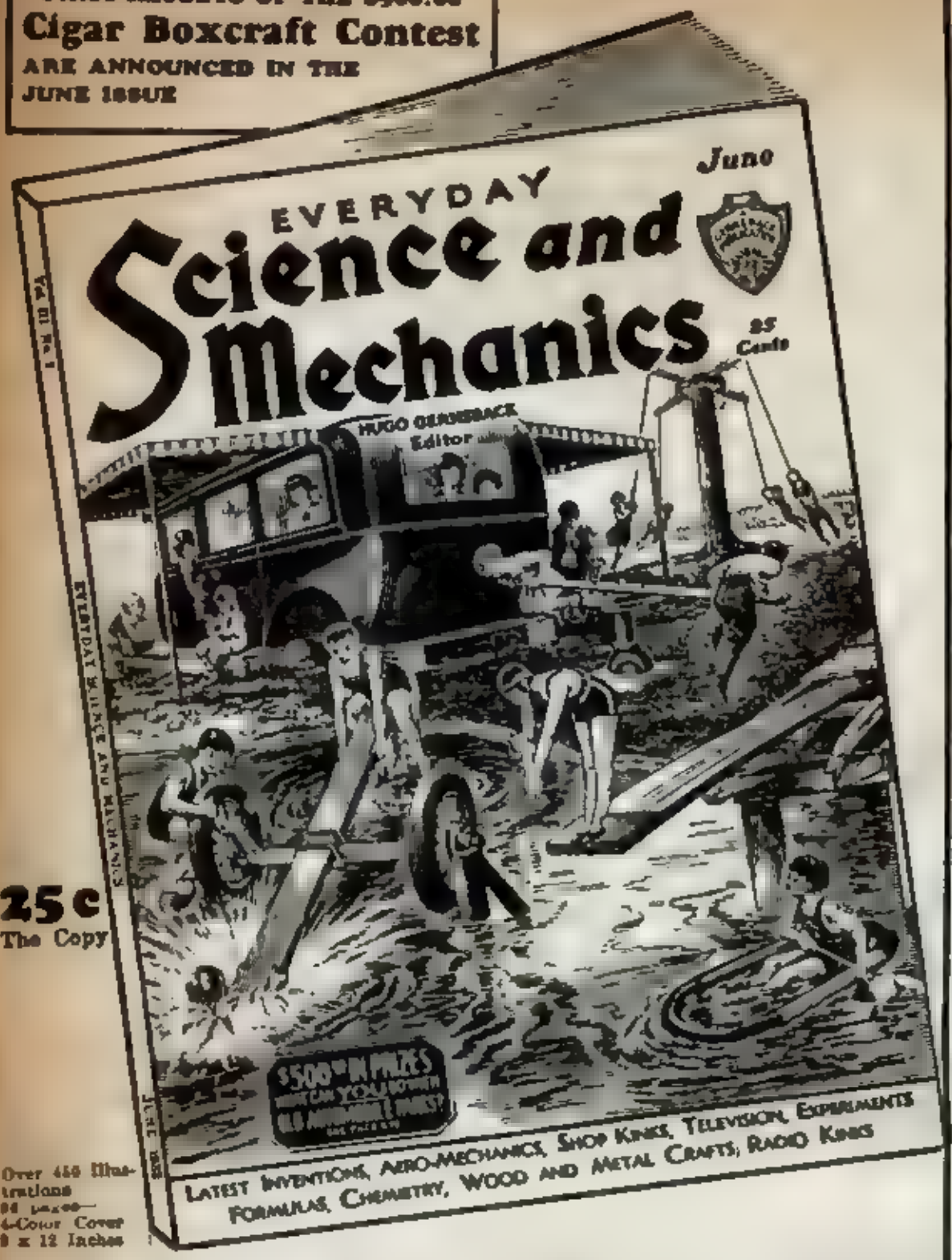

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No. 1

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These nationally-known educators pass upon the scientific principles of all stories.

WONDERS OF THE COMMONPLACE

By HUGO GERNSBACK

WHEN we see and hear certain things day in and day out, all our lives, we become so accustomed to them that they no longer arouse any attention.

And it is one of the greatest failings of the human race that we pay no attention to the commonplace; although it is there that most of the secrets of nature are hidden. It took such a deep thinker as Newton to observe an utterly commonplace occurrence such as a falling apple; and his studies of gravitation that followed gave us more insight into the celestial mechanics than any man has contributed before or after. Rather than go far afield, it might behoove us to look at the commonplace things which surround us on every hand, and here make discoveries which may, in time, prove revolutionary. A few examples will make my point clear:

We say the sun shines, yet, as a matter of fact, all sunlight is invisible and it cannot be seen at all. If you doubt this statement, on the next clear starlit night look skywards and see if you can see any sunlight. When it is night you are naturally in the earth's shadow. Yet, *beyond* the earth's shadow, *with the full force of the sunlight streaming over it*, no light can be seen. The small space occupied by the earth's shadow is really insignificant, and at its furthest limit it extends only some 900,000 miles, therefore all around us sunlight exists but it cannot be seen.

If all space were filled with atmosphere, the situation would of course be different. You would then see the sunlight exactly as you see the rays of a searchlight passing overhead, although you need not see the searchlight itself. But transport the same searchlight out into the vacuum of open space, as for instance to the moon, and you could not see the light unless you saw the source itself. Cut off the view of the searchlight and you no longer see the rays.

Did it ever occur to you that extremely little heat from the sun is used for useful purposes? If you take all of the planets together, their surface upon which the rays of the sun fall, as compared with the sun's surface is so insignificant, that it cannot even be considered for practical purposes. Yet, the sun loses a tremendous amount of energy every second by radiation into space. Now consider that only a very small fraction of this radiant heat falls on the surface of a planet like the earth, for instance, and here it is used for heating purposes. It is like having all of the powerhouses of the entire world run day and night and using a 2-candlepower incandescent lamp as the total amount of the energy consumed. The rest is waste. Waste, from our viewpoint, of course, may not be "waste" from another viewpoint which we do not know.

The earth, as well as the rest of the planets in their almost circular paths around the sun travel at high speed. It is as if you had someone on the sun whirling a huge string with a stone attached at the other end. The stone, —in this instance the earth,—flies at the rate of some 65,000 miles an hour—a tremendous speed. Naturally, the supporting "string" has to be quite solid to keep the "stone" from flying out into space, and how thick would you expect—in the case of the earth—the "string" would have to be? The calculation comes out in this case, to about 185 miles thick (diameter). You can therefore imagine a wire made of the best tempered steel 185 miles in diameter to hold the earth from flying off into space due to its centrifugal force. Yet, of course, we know that there is no such wire or support, but that the earth swings entirely free, a very puzzling phenomenon when you come to think of it.

It should be simple to build a huge searchlight whereby it would be possible to send flashes to the unilluminated portion of the moon so that observers in some other part of our earth could see the flashes. In other words, a sort of telegraphy, using the moon as a screen. A German professor who gave the matter some attention figured out that it would be impossible to build a large enough searchlight to do the trick; in other words, that no human-made source of light could be strong enough to accomplish the result. The worthy professor calculated that it would certainly be impossible for human beings to provide as much illumination as is now provided by the stars, which also illuminate the dark portions of the moon. In other words, to see the flashes you would have to provide more illumination than the light of all the stars combined, which at this stage of our civilization seems hopeless.

THE INVISIBLE CITY

By **Clark Ashton Smith**

(Illustration by Paul)

The thing was phenomonally light; and it seemed to burn and freeze his fingers. The ring of ultra-violet beings stood stupefied by his audacity.

THE INVISIBLE CITY

by the author of "The Eternal World," "Beyond the Singing Flame," etc.

"CONFOUND you," said Langley in a hoarse whisper that came with effort through swollen lips, blue-black with thirst. "You've gulped about twice your share of the last water in the Lob-nor Desert." He shook the canteen which Furnham had just returned to him, and listened with a savage frown to the ominously light gurgling of its contents.

The two surviving members of the Furnham Archæological Expedition eyed each other with new-born but rapidly growing disfavor. Furnham, the leader, flushed with dark anger beneath his coat of deepening dust and sunburn. The accusation was unjust, for he had merely moistened his parched tongue from Langley's canteen. His own canteen, which he had shared equally with his companion, was now empty.

Up to that moment the two men had been the best of friends. Their months of association in a hopeless search for the ruins of the semi-fabulous city of Kobar had given them abundant reason to respect each other. Their quarrel sprang from nothing else than the mental distortion and morbidity of sheer exhaustion, and the strain of a desperate predicament. Langley, at times, was even growing a trifle lightheaded after their long ordeal of wandering on foot through a land without wells, beneath a sun whose flames poured down upon them like molten lead.

"We ought to reach the Tarim river pretty soon," said Furnham stiffly, ignoring the charge and repressing a desire to announce in mordant terms his unfavorable opinion of Langley.

"If we don't, I guess it will be your fault," the other snapped. "There's been a jinx on this expedition from the beginning; and I shouldn't wonder if the jinx were you. It was your idea to hunt for Kobar, anyway. I've never believed there was any such place."

Furnham glowered at his companion, too near the breaking point himself to make due allowance for Langley's nerve-wrought condition, and then turned away, refusing to reply. The two plodded on, ignoring each other with sullen ostentatiousness.

The expedition, consisting of five Americans in the employ of a New York museum, had started from Khotan two months before to investigate the archæological remains of Eastern Turkestan. Ill-luck had dogged them continually; and the ruins of Kobar, their main objective, said to have been built by the ancient Uighurs, had eluded them like a mirage. They had found other ruins, had exhumed a few Greek and Byzantine coins, and a few broken Buddhas; but nothing of much novelty or importance, from a museum viewpoint.

At the very outset, soon after leaving the oasis of Tchertchen, one member of the party had died from gangrene caused by the vicious bite of a Bactrian camel. Later on, a second, seized by a cramp while swimming in the shallow Tarim River, near the reedy marshes of Lob-nor, that strange remnant of a vast inland sea, had drowned before his companions could reach him. A third had died of some mysterious fever. Then, in the desert south of the Tarim, where Furnham and Langley still persisted in a futile effort to locate the lost city, their Mongol guides had deserted them. They took all the camels and most of the provisions, leaving to the two men only their rifles, their canteens, their other personal belongings, the various antique relics they had amassed, and a few tins of food.

CLARK ASHTON SMITH

CLARK ASHTON SMITH is a past master in the art of showing to us forcibly our human limitations. By putting us in comparison with other forms of life, he pictures very vividly that our proud race is but a fumbling, stumbling type of semi-intelligent animal. And even as animals we lack many of the qualities possessed by other forms, such as the detection of smells, sounds, etc., that are unknown to us.

In this story Mr. Smith against throws our adventurers into the arms of a strange but believable form of life. There is nothing bizarre or impossible in the experiences they pass through. And if many people think that these experiences are those in a dream, we have the authority of the eminent scientist, Sir James Jeans, who tells us that our own science is really dreamlike.

The desertion was hard to explain, for the Mongols had heretofore shown themselves reliable enough. However, they had displayed a queer reluctance on the previous day, had seemed unwilling to venture further among the endless undulations of coiling sand and pebbly soil.

Furnham, who knew the language better than Langley, had gathered that they were afraid of something, were deterred by superstitious legends concerning this portion of the Lob-nor Desert. But they had been strangely vague and reticent as to the object of their fear; and Furnham had learned nothing of its actual nature.

Leaving everything but their food, water and rifles to the mercy of the drifting sands, the men had started northward toward the Tarim, which was sixty or seventy miles away. If they could reach it, they would find shelter in one of the sparse settlements of fisherman along its shores; and could eventually make their way back to civilization.

It was now afternoon of the second day of their wander-

ings. Langley had suffered most, and he staggered a little as they went on beneath the eternally cloudless heavens, across the glaring desolation of the dreary landscape. His heavy Winchester had become an insufferable burden, and he had thrown it away in spite of the remonstrance of Furnham, who still retained his own weapon.

The sun had lowered a little, but burned with gruelling rays, tyrannically torrid, through the bright inferno of stagnant air. There was no wind, except for brief and furious puffs that whirled the light sand in the faces of the men, and then died as suddenly as they had risen. The ground gave back the heat and glare of the heavens in shimmering, blinding waves of refraction.

LANGLEY and Furnham mounted a low, gradual ridge and paused in sweltering exhaustion on its rocky spine. Before them was a broad, shallow valley, at which they stared in a sort of groggy wonderment, puzzled by the level and artificial-looking depression, perfectly square, and perhaps a third of a mile wide, which they descried in its center. The depression was bare and empty with no sign of ruins, but was lined with numerous pits that suggested the ground-plan of a vanished city.

The men blinked, and both were prompted to rub their eyes as they peered through the flickering heat-waves; for each had received a momentary impression of flashing light, broken into myriad spires and columns, that seemed to fill the shallow basin and fade like a mirage.

Still mindful of their quarrel, but animated by the same unspoken thought, they started down the long declivity, heading straight toward the depression. If the place were the site of some ancient city they might possibly hope to find a well or water-spring.

They approached the basin's edge, and were puzzled more and more by its regularity. Certainly it was not the work of nature; and it might have been quarried yesterday, for seemingly there were no ravages of wind and weather in the sheer walls; and the floor was remarkably smooth, except for the multitude of square pits that ran in straight, intersecting lines, like the cellars of destroyed or unbuilt houses. A growing sense of strangeness and mystery troubled the two men; and they were blinded at intervals by the flash of evanescent light that seemed to overflow the basin with phantom towers and pillars.

They paused within a few feet of the edge, incredulous and bewildered. Each began to wonder if his brain had been affected by the sun. Their sensations were such as might mark the incipience of delirium. Amid the blasts of furnace-like heat, a sort of icy coolness appeared to come upon them from the broad basin. Clammy but refreshing, like the chill that might emanate from walls of sunless stone, it revived their fainting senses and quickened their awareness of unexplained mystery.

The coolness became even more noticeable when they reached the very verge of the precipice. Here, peering over, they saw that the sides fell unbroken at all points for a depth of twenty feet or more. In the smooth bottom, the cellar-like pits yawned darkly and unfathomably. The floor about the pits was free of sand, pebbles or detritus.

"Heavens, what do you make of that?" muttered Furnham to himself rather than to Langley. He stooped over the edge, staring down with feverish and inconclusive speculations. The riddle was beyond his experience—he had met nothing like it in all his researches. His puzzlement, however, was partly submerged in the more pressing problem of how he and Langley were to descend the sheer walls. Thirst—and the hope of finding water in one of the pits—were more important at that moment than the origin and nature of the square basin.

Suddenly, in his stooping position, a kind of giddiness seized him, and the earth seemed to pitch deliriously beneath his feet. He staggered, he lost his balance, and fell forward from the verge.

Half-fainting, he closed his eyes against the hurtling descent and the crash twenty feet below. Instantly, it seemed, he struck bottom. Amazed and incomprehending, he found that he was lying at full length, prone on his stomach in mid-air, upborne by a hard, flat, invisible substance. His outflung hands encountered an obstruction, cool as ice and smooth as marble; and the chill of it smote through his clothing as he lay gazing down into the gulf. Wrenched from his grasp by the fall, his rifle hung beside him.

He heard the startled cry of Langley, and then realized that the latter had seized him by the ankles and was drawing him back to the precipice. He felt the unseen surface slide beneath him, level as a concrete pavement, glib as glass. Then Langley was helping him to his feet. Both, for the nonce, had forgotten their misunderstanding.

"Say, am I bughouse?" cried Langley. "I thought you were a goner when you fell. What have we stumbled on, anyhow?"

"Stumbled is good," said Furnham reflectively as he tried to collect himself. "That basin is floored with something solid, but transparent as air—something unknown to geologists or chemists. God knows what it is, or where it came from or who put it there. We've found a mystery that puts Kobar in the shade. I move that we investigate."

He stepped forward, very cautiously, still half-fearful of falling, and stood suspended over the basin.

"If you can do it, I guess I can," said Langley as he followed. With Furnham in the lead, the two began to cross the basin, moving slowly and gingerly along the invisible pavement. The sensation of peering down as if through empty air was indescribably weird.

THEY had started midway between two rows of the dark pits, which lay fifty feet apart. Somehow, it was like following a street. After they had gone some little distance from the verge, Furnham deviated to the left, with the idea of looking directly down into one of these mysterious pits. Before he could reach a vertical vantage-point, he was arrested by a smooth, solid wall, like that of a building.

"I think we've discovered a city," he announced. Groping his way along the air-clear wall, which seemed free of angles or roughness, he came to an open doorway. It was about five feet wide and of indeterminable height. Fingering the wall like a blind man, he found that it was nearly six inches thick. He and Langley entered the door, still walking on a level pavement, and advanced without obstruction, as if in a large empty room.

For an instant, as they went forward, light seemed to flash above them in great arches and arcades, touched with evanescent colors like those in fountain-spray. Then it vanished, and the sun shone down as before from a void and desert heaven. The coolness emanating from the un-

known substance was more pronounced than ever; and the men almost shivered. But they were vastly refreshed, and the torture of their thirst was somewhat mitigated.

Now they could look perpendicularly into the square pit below them in the stone floor of the excavation. They were unable to see its bottom, for it went down into shadow beyond the westering sun-rays. But both could see the bizarre and inexplicable object which appeared to float immobile in air just below the mouth of the pit. They felt a creeping chill that was more insidious, more penetrant than the iciness of the unseen walls.

"Now I'm seeing things," said Langley.

"Guess I'm seeing them too," added Furnham.

The object was a long, hairless, light-grey body, lying horizontally, as if in some invisible sarcophagus or tomb. Standing erect, it would have been fully seven feet in height. It was vaguely human in its outlines, and possessed two legs and two arms; but the head was quite unearthly. The thing seemed to have a double set of high, concave ears, lined with perforations; and in place of nose, mouth and chin, there was a long, tapering trunk which lay coiled on the bosom of the monstrosity like a serpent. The eyes—or what appeared to be such—were covered by leathery, lashless and hideously wrinkled lids.

The thing lay rigid; and its whole aspect was that of a well-preserved corpse or mummy. Half in light and half in shadow, it hung amid the funereal, fathomless pit; and beneath it, at some little distance, as their eyes became accustomed to the gloom, the men seemed to perceive another and similar body.

Neither could voice the mad, eerie thoughts that assailed them. The mystery was too macabre and overwhelming and impossible. It was Langley who spoke at last.

"Say, do you suppose they are *all* dead?"

Before Furnham could answer, he and Langley heard a thin, shrill, exiguous sound, like the piping of some unearthly flute whose notes were almost beyond human audition. They could not determine its direction; for it seemed to come from one side and then from another as it continued. Its degree of apparent nearness or distance was also variable. It went on ceaselessly and monotonously, thrilling them with an eeriness as of untrod worlds, a terror as of uncharted dimensions. It seemed to fade away in remote ultramundane gulfs; and then, louder and clearer than before, the piping came from the air beside them.

Inexpressibly startled, the two men stared from side to side in an effort to locate the source of the sound. They could find nothing. The air was clear and still about them; and their view of the rocky slopes that rimmed the basin was blurred only by the dancing haze of heat.

The piping ceased, and was followed by a dead, uncanny silence. But Furnham and Langley had the feeling that someone or something was near them—a stealthy presence that lurked and crouched and drew closer till they could have shrieked aloud with the terror of suspense. They seemed to wait amid the unrealities of delirium and mirage, haunted by some elusive, undeclared horror.

Tensely they peered and listened, but there was no sound or visual ostent. Then Langley cried out, and fell heavily to the unseen floor, borne backward by the onset of a cold and tangible thing, resistless as the launching coils of an anaconda. He lay helpless, unable to move beneath the dead and fluid weight of the unknown incubus, which crushed down his limbs and body and almost benumbed him with an icy chill as of etheric space. Then something touched his throat, very lightly at first, and then with a pressure that deepened intolerably to a stabbing pain, as if he had been pierced by an icicle.

A black faintness swept upon him, and the pain seemed to recede as if the nerves that bore it to his brain were spun like lengthening gossamers across gulfs of anesthesia.

Furnham, in a momentary paralysis, heard the cry of his companion, and saw Langley fall and struggle feebly, to lie inert with closing eyes and whitening face.

Mechanically, without realizing for some moments what had happened, he perceived that Langley's garments were oddly flattened and pressed down beneath an invisible weight. Then, from the hollow of Langley's neck, he saw the spurting of a thin rill of blood, which mounted straight in air for several inches, and vanished in a sort of red mist.

CHAPTER II

Men of the Ultra-Violet

BIZARRE, incoherent thoughts arose in Furnham's mind. It was all too incredible, too unreal. His brain must be wandering, it must have given way entirely . . . but something was attacking Langley—an invisible vampire of this invisible city.

He had retained his rifle. Now he stepped forward and stood beside the fallen man. His free hand, groping in the air, encountered a chill, clammy surface, rounded like the back of a stooping body. It numbed his finger-tips even as he touched it. Then something seemed to reach out like an arm and hurl him violently backward.

Reeling and staggering, he managed to retain his balance, and returned more cautiously. The blood still rose in a vanishing rill from Langley's throat. Estimating the position of the unseen attacker, Furnham raised his rifle and took careful aim, with the muzzle less than a yard away from its hidden mark.

The gun roared with deafening resonance, and its sound died away in slow echoes, as if repeated by a maze of walls. The blood ceased to rise from Langley's neck, and fell to a natural trickle. There was no sound, no manifestation of any kind from the thing that had assailed him. Furnham stood in doubt, wondering if his shot had taken effect. Perhaps the thing had been frightened away, perhaps it was still close at hand, and might leap upon him at any moment, or return to its prey.

He peered at Langley, who lay white and still. The blood was ceasing to flow from the tiny puncture. He stepped toward him, with the idea of trying to revive him, but was arrested by a strange circumstance. He saw that Langley's face and upper body were blurred by a grey mist that seemed to thicken and assume palpable outlines. It darkened apace, it took on solidity and form; and Furnham beheld the monstrous thing that lay prone between himself and his companion, with part of its fallen bulk still weighing upon Langley. From its inertness, and the bullet-wound in its side, whence oozed a viscid purple fluid, he felt sure that the thing was dead.

The monster was alien to all terrestrial biology—a huge, invertebrate body, formed like an elongated starfish, with

the points ending in swollen tentacular limbs. It had a round, shapeless head with the curving, needle-tipped bill of some mammoth insect. It must have come from other planets or dimensions than ours. It was wholly unlike the mummified creature that floated in the pit below, and Furnham felt that it represented an inferior animal-like type. It was evidently composed of an unknown order of organic matter that became visible to human eyes only in death.

His brain was swamped by the mad enigma of it all. What was this place upon which he and Langley had stumbled? Was it an outpost of worlds beyond human knowledge or observation? What was the material of which these buildings had been wrought? Who were their builders? Whence had they come and what had been their purpose? Was the city of recent date or was it, perhaps, a sort of ruin, whose builders lay dead in its vaults—a ruin haunted only by the vampire monster that had assailed Langley?

Shuddering with repulsion at the dead monster, he started to drag the still unconscious man from beneath its loathsome mass. He avoided touching the dark, semi-translucent body, which lapsed forward, quivering like a stiff jelly, when he had pulled his companion away from it.

Like something very trivial and far away, he remembered the absurd quarrel which Langley had picked with him, and remembered his own resentment as part of a doubtful dream, now lost in the extra-human mystery of their surroundings. He bent over his comrade, anxiously, and saw that some of the natural tan was returning to the pale face and that the eyelids were beginning to flutter. The blood had clotted on the tiny wound. Taking Langley's canteen, he poured the last of its contents between the owner's teeth.

In a few moments Langley was able to sit up. Furnham helped him to his feet, and the two began to cross their way from the crystal maze.

They found the doorway; and Furnham, still supporting the other, decided to retrace their course along the weird street by which they had started to cross the basin. They had gone but a few paces when they heard a faint, almost inaudible rustling in the air before them, together with a mysterious grating noise. The rustling seemed to spread and multiply on every hand, as if an invisible crowd were gathering; but the grating soon ceased.

They went on, slowly and cautiously, with a sense of imminent, uncanny peril. Langley was now strong enough to walk without assistance; and Furnham held his cocked rifle ready for instant use. The vague rustling sounds receded, but still encircled them.

MIDWAY between the underlying rows of pits, they moved on toward the desert precipice, keeping side by side. A dozen paces on the cold, solid pavement, and then they stepped into empty air and landed several feet below with a terrific jar, on another hard surface. It must have been the top of a flight of giant stairs; for, losing their balance, they both lurched and fell, and rolled downward along a series of similar surfaces, and lay stunned at the bottom.

Langley had been rendered unconscious by the fall; but Furnham was vaguely aware of several strange, dream-like phenomena. He heard a faint, ghostly, sibilant rustling, he felt a light and clammy touch upon his face, and smelled an odor of suffocating sweetness, in which he seemed to sink as into an unfathomable sea. The rustling died to a vast and spatial silence; oblivion darkened above him; and he slid swiftly into nothingness.

It was night when Furnham awoke. His first impression was the white dazzle of a full moon shining in his eyes. Then he became aware that the circle of the great orb was oddly distorted and broken, like a moon in some cubistic painting. All around and above him were bright, crystalline angles, crossing and intermingling—the outlines of a translucent architecture, dome on dome and wall on wall. As he moved his head, showers of ghostly irises—the lunar yellow and green and purple—fell in his eyes from the broken orb and vanished.

He saw that he was lying on a glass-like floor, which caught the light in moving sparkles. Langley, still unconscious, was beside him. Doubtless they were still in the mysterious oubliette down whose invisible stairs they had fallen. Far off, to one side, through a mélange of the transparent partitions, he could see the vague rocks of the Gobi, twisted and refracted in the same manner as the moon.

Why, he wondered, was the city now visible? Was its substance rendered perceptible, in a partial sort of way by some unknown ray which existed in moonlight but not in the direct beams of the sun? Such an explanation sounded altogether too unscientific; but he could not think of any other at the moment.

Rising on his elbow, he saw the glassy outlines of the giant stairs down which he and Langley had plunged. A pale, diaphanous form, like a phantom of the mummified creature they had seen in the pit, was descending the stairs. It moved forward with fleet strides, longer than those of a man, and stooped above Furnham with its spectral trunk waving inquisitively and poising an inch or two from his face. Two round, phosphorescent eyes emitting perceptible beams like lanterns, glowed solemnly in its head above the beginning of the proboscis.

The eyes seemed to transfix Furnham with their unearthly gaze. He felt that the light they emitted was flowing in a ceaseless stream into his own eyes—into his very brain. The light seemed to shape itself into images, formless and incomprehensible at first, but growing clearer and more coherent momently. Then, in some indescribable way, the images were associated with articulate words, as if a voice were speaking: words that he understood as one might understand the language of dreams.

"We mean you no harm," the voice seemed to say. "But you have stumbled upon our city; and we cannot afford to let you escape. We do not wish to have our presence known to men.

"We have dwelt here for many ages. The Lob-nor desert was a fertile realm when we first established our city. We came to your world as fugitives from a great planet that once formed part of the solar system—a planet composed entirely of ultra-violent substances, which was destroyed in a terrible cataclysm. Knowing the imminence of the catastrophe, some of us were able to build a huge space-flier, in which we fled to the Earth. From the materials of the flier, and other materials we had brought along for the express purpose, we built our city

whose name, as well as it can be conveyed in human phonetics, is Ciis.

"The things of your world have always been plainly visible to us; and, in fact, due to our immense scale of perceptions, we probably see much that is not manifest to you. Also, we have no need of artificial light at any time. We discovered, however, at an early date, that we ourselves and our buildings were invisible to men. Strangely enough, our bodies undergo in death a degeneration of substance which brings them within the infra-violet range; and thus within the scope of your visual cognition."

The voice seemed to pause, and Furnham realized that it had spoken only in his thoughts by a sort of telepathy. In his own mind, he tried to shape a question:

"What do you intend to do with us?"

Again he heard the still, toneless voice:

"We plan to keep you with us permanently. After you fell through the trap-door we had opened, we overpowered you with an anesthetic; and during your period of unconsciousness, which lasted many hours, we injected into your bodies a drug which has already affected your vision, rendering visible, to a certain degree, the ultra-violet substances that surround you. Repeated injections, which must be given slowly, will make these substances no less plain and solid to you than the materials of your own world. Also, there are other processes to which we intend to subject you . . . processes that will serve to adjust and acclimate you in all ways to your new surroundings."

BEHIND Furnham's weird interlocutor, several more fantasmal figures had descended the half-visible steps. One of them was stooping over Langley, who had begun to stir and would recover full consciousness in a few instants. Furnham sought to frame other questions, and received an immediate reply.

"The creature that attacked your companion was a domestic animal. We were busy in our laboratories at the time, and did not know of your presence till we heard the rifle shots.

"The flashes of light which you saw among our invisible walls on your arrival were due to some queer phenomenon of refraction. At certain angles the sunlight was broken or intensified by the molecular arrangement of the unseen substance."

At this juncture Langley sat up, looking about him in a bewildered fashion.

"What the hell is all this, and where the hell are we?" he inquired as he peered from Furnham to the people of the city.

Furnham proceeded to explain, repeating the telepathic information he had just received. By the time he had ceased speaking, Langley himself appeared to become the recipient of some sort of mental reassurance from the phantom-like creature who had been Furnham's interlocutor; for Langley stared at this being with a mixture of enlightenment and wonder in his expression.

Once more there came the still, super-auditory voice, fraught now with imperious command.

"Come with us. Your initiation into our life is to begin immediately. My name is Aispha—if you wish to have a name for me in your thoughts. We ourselves, communicating with each other without language, have little need for names; and their use is a rare formality among us. Our generic name, as a people, is the Tiisins."

Furnham and Langley arose with an unquestioning alacrity, for which afterwards they could hardly account, and followed Aispha. It was as if a mesmeric compulsion had been laid upon them. Furnham noted, in an automatic sort of way, as they left the oubliette, that his rifle had vanished. No doubt it had been carefully removed during his period of insensibility.

He and Langley climbed the high steps with some difficulty. Queerly enough, considering their late fall, they found themselves quite free of stiffness and bruises; but at the time they felt no surprise—only a drugged acquiescence in all the marvels and perplexities of their situation.

They found themselves on the outer pavement, amid the bewildering outlines of the luminous buildings which towered above them with intersections of multiform crystalline curves and angles. Aispha went on without pause, leading them toward the fantastic serpentine arch of an open doorway in one of the tallest of these edifices, whose pale domes and pinnacles were heaped in immaterial splendor athwart the zenith-nearing moon.

Four of the ultra-violet people—the companions of Aispha—brought up the rear. Aispha was apparently unarmed; but the others carried weapons like heavy-bladed and blunt-pointed sickles of glass or crystal. Many others of this incredible race, intent on their own enigmatic affairs, were passing to and fro in the open street and through the portals of the unearthly buildings. The city was a place of silent and fantasmal activity.

At the end of the street they were following, before they passed through the arched entrance, Furnham and Langley saw the rock-strewn slope of the Lob-nor, which seemed to have taken on a queer filminess and insubstantiality in the moonlight. It occurred to Furnham, with a sort of weird shock, that his visual perception of earthly objects, as well as of the ultra-violet city, was being affected by the injections of which Aispha had told him.

The building they now entered was full of apparatuses made in the form of distorted spheres and irregular disks and cubes, some of which seemed to change their outlines from moment to moment in a confusing manner. Certain of them appeared to concentrate the moonlight like ultra-powerful lenses, turning it to a fiery, blinding brilliance. Neither Furnham nor Langley could imagine the purpose of these devices; and no telepathic explanation was vouchsafed by Aispha or any of his companions.

As they went on into the building there was a queer sense of some importunate and subtle vibration in the air, which affected the men unpleasantly. They could not assign its source nor could they be sure whether their own perception of it was purely mental or came through the avenues of one or more of the physical senses. Somehow it was both disturbing and narcotic; and they sought instinctively to resist its influence.

The lower story of the edifice was seemingly one vast room. The strange apparatuses grew taller about them, rising as if in concentric tiers as they went on. In the huge dome above them, living rays of mysterious light appeared to cross and re-cross at all angles of incidence, weaving a bright, ever-changing web that dazzled the eye.

CHAPTER III

The End of Ciis

THEY emerged in a clear, circular space at the center of the building. Here ten or twelve of the ultra-violet people were standing about a slim column, perhaps five feet high, that culminated in a shallow basin-like formation. There was a glowing oval-shaped object in the basin, large as the egg of some extinct bird. From this object, numerous spokes of light extended horizontally in all directions, seeming to transfix the heads and bodies of those who stood in a loose ring about the column. Furnham and Langley became aware of a high, thin, humming noise which emanated from the glowing egg and was somehow inseparable from the spokes of light, as if the radiance had become audible.

Aispha paused facing the men; and a voice spoke in their minds.

"The glowing object is called the Doir. An explanation of its real nature and origin would be beyond your present comprehension. It is allied, however, to that range of substances which you would classify as minerals; and is one of a number of similar objects which existed in our former world. It generates a mighty force which is intimately connected with our life-principle; and the rays emanating from it serve us in place of food. If the Doir were lost or destroyed, the consequences would be serious; and our life-term, which normally is many thousand years, would be shortened for want of the nourishing and revivifying rays."

Fascinated, Furnham and Langley stared at the egg-shaped orb. The humming seemed to grow louder; and the spokes of light lengthened and increased in number. The men recognized it now as the source of the vibration that had troubled and oppressed them. The effect was insidious, heavy, hypnotic, as if there were a living brain in the object that sought to overcome their volition and subvert their senses and their minds in some unnatural thralldom.

They heard the mental command of Aispha:

"Go forward and join those who partake of the luminous emanations of the Doir. We believe that by so doing you will, in course of time, become purged of your terrestrial grossness; that the very substance of your bodies may eventually be transformed into something not unlike that of our own; and your senses raised to a perceptional power such as we possess."

Half unwillingly, with an eerie consciousness of compulsion, the men started forward.

"I don't like this," said Furnham in a whisper to Langley. "I'm beginning to feel queer enough already." Summoning his utmost will power he stopped short of the emanating rays and put out his hand to arrest Langley.

With dazzled eyes, they stood peering at the Doir. A cold, restless fire, alive with some nameless evil that was not akin to the evil of Earth, pulsated in its heart; and the long, sharp beams, quivering slightly, passed like javelins into the semi-crystalline bodies of the beings who stood immobile around the column.

"Hasten!" came the unvocal admonition of Aispha. "In a few moments, the force in the Doir, which has a regular rhythm of ebb and flow, will begin to draw back upon itself. The rays will be retracted; and you will have to wait for many minutes before the return of the emanation."

A quick, daring thought had occurred to Furnham. Eyeing the Doir closely, he had been impressed by its seeming fragility. The thing was evidently not attached to the basin in which it reposed; and in all likelihood it would shatter like glass if hurled or even dropped on the floor. He tried to suppress his thought, fearing that it would be read by Aispha or others of the ultra-violet people. At the same time, he sought to phrase, as innocently as possible a mental question:

"What would happen if the Doir were broken?"

Instantly he received an impression of anger, turmoil and consternation in the mind of Aispha. His question, however, was apparently not answered; and it seemed that Aispha did not want to answer it—that he was concealing something too dangerous and dreadful to be revealed. Furnham felt, too, that Aispha was suspicious, had received an inkling of his own repressed thought.

It occurred to him that he must act quickly if at all. Nerving himself, he leaped forward through the ring of bodies about the Doir. The rays had already begun to shorten slightly; but he had the feeling of one who hurls himself upon an array of lance-points. There was an odd, indescribable sensation, as if he were being pierced by something that was both hot and cold; but neither the warmth nor the chill was beyond endurance. A moment, and he stood beside the column, lifting the glowing egg in his hands and poising it defiantly as he turned to face the ultra-violet people.

The thing was phenomenally light; and it seemed to burn his fingers and to freeze them at the same time. He felt a strange vertigo, an indescribable confusion; but he succeeded in mastering it. The contact of the Doir might be deadlier to the human tissues than that of radium for aught he knew. He would have to take his chances. At any rate it would not kill him immediately; and if he played his cards with sufficient boldness and skill, he could make possible the escape of Langley—if not his own escape.

THE ring of ultra-violet beings stood as if stupefied by his audacity. The retracting spokes of light were slowly drawing back into the egg; but Furnham himself was still impaled by them. His fingers seemed to be growing translucent where they clutched the weird ball.

He met the phosphoric gaze of Aispha, and heard the frantic thoughts that were pouring into his mind, not only from Aispha but from all the partakers of the Doir's luminous beams. Dread, unhuman threats, desperate injunctions to return the Doir to its pedestal, were being laid upon him. Rallying all his will, he defied them.

"Let us go free," he said mentally addressing Aispha. "Give me back my weapon and permit my companion and me to leave your city. We wish you no harm; but we cannot allow you to detain us. Let us go—or I will shatter the Doir—will smash it like an egg on the floor."

At the shaping of his destructive thought, a shudder passed among the semi-spectral beings; and he felt the dire fear that his threat had aroused in them. He had been right: the Doir *was* fragile; and some awful catastrophe, whose nature he could not quite determine, would ensue instantly upon its shattering.

Step by step, glancing frequently about to see that no

one approached him by stealth from behind, Furnham returned to Langley's side. The Tiisins drew back from him in evident terror. All the while he continued to issue his demands and comminations:

"Bring the rifle quickly . . . the weapon you took from me . . . and give it into my companion's hands. Let us go without hindrance or molestation—or I will drop the Doir. When we are outside the city, one of you—one only—shall be permitted to approach us, and I will deliver the Doir to him."

One of the Tiisins left the group to return in less than a minute with Furnham's Winchester. He handed it to Langley, who inspected the weapon carefully and found that it had not been damaged or its loading or mechanism tapered with in any way. Then, with the ultra-violet creatures following them in manifest perturbation, Furnham and Langley made their way from the building and started along the open street in the general direction (as Langley estimated from the compass he carried) of the Tarim river.

They went on amid the fantastic towering of the crystalline piles; and the people of the city, called as if by some unworded summons, poured from the doorways in an ever-swelling throng and gathered behind them. There was no active demonstration of any overt kind; but both the men were increasingly aware of the rage and consternation that had been aroused by Furnham's audacious theft of the Doir—a theft that seemed to be regarded in the light of actual blasphemy.

The hatred of the Tiisins, like a material radiation—dark, sullen, stupefying, stultifying, beat upon them at every step. It seemed to clog their brains and their feet like some viscid medium of nightmare; and their progression toward the Gobi slope became painfully slow and tedious.

Before them, from one of the buildings, a tentacled, starfish monster, like the thing that had assailed Langley, emerged and lay crouching in the street as if to dispute their passage. Raising its evil beak, it glared with filmy eyes, but slunk away from their approach as if at the monition of its owners.

Furnham and Langley, passing it with involuntary shivers of repugnance, went on. The air was oppressedwith alien, unformulable menace. They felt an abnormal drowsiness creeping upon them. There was an unheard, narcotic music, which sought to overcome their vigilance, to beguile them into slumber.

Furnham's fingers grew numb with the unknown radiations of the Doir, though the sharp beams of light, by accelerative degrees, had withdrawn into its center, leaving only a formless misty glow that filled the weird orb. The thing seemed latent with terrible life and power. The bones of his transparent hand were outlined against it like those of a skeleton.

Looking back, he saw that Aispha followed closely, walking in advance of the other Tiisins. He could not read the thoughts of Aispha as formerly. It was as if a blank, dark wall had been built up. Somehow he had a premonition of evil—of danger and treachery in some form which he could not understand or imagine.

He and Langley came to the end of the street, where the ultra-violet pavement joined itself to the desert acclivity. As they began their ascent of the slope both men realized that their visual powers had indeed been affected by the injective treatment of the Tiisins: for the soil seemed to glow beneath them, faintly translucent; and the boulders were like semi-crystalline masses, whose inner structure they could see dimly.

Aispha followed them on the slope; but the other people of Ciis, as had been stipulated by Furnham, paused at the juncture of their streets and buildings with the infra-violet substances of Earth.

After they had gone perhaps fifty yards on the gentle acclivity, Furnham came to a pause and waited for Aispha, holding out the Doir at arm's length. Somehow he had a feeling that it was unwise to return the mystic egg; but he would keep his promise, since the people of Ciis had kept their part of the bargain so far.

Aispha took the Doir from Furnham's hands; but his thoughts whatever they were remained carefully shrouded. There was a sense of something ominous and sinister about him as he turned and went back down the slope with the fiery egg shining through his body like a great watchful eye. The beams of light were beginning to emanate from its center once more.

The two men, looking back ever and anon, resumed their journey. Ciis glimmered below them like the city of a mirage in the moonlit hollow. They saw the ultra-violet people crowding to await Aispha at the end of their streets.

Then, as Aispha neared his fellows two rays of cold, writhing fire leaped forth from the base of a tower that glittered like glass at the city's verge. Clinging to the ground, the rays ran up the slope with the undulant motion of pythons, following Langley and Furnham at a speed that would soon overtake them.

"They're doublecrossing us!" warned Furnham. He caught the Winchester from Langley, dropped to his knees and aimed carefully, drawing a bead on the luminous orb of the Doir through the spectral form of Aispha, who had now reached the city and was about to enter the waiting throng.

"Run!" he called to Langley. "I'll make them pay for their treachery; and perhaps you can get away in the meanwhile."

He pulled the trigger, missing Aispha but dropping at least two of the Tiisins who stood near the Doir. Again, steadily, he drew bead, while the rays from the tower serpentined onward, pale, chill and deadly-looking, till they were almost at his feet. Even as he aimed, Aispha took refuge in the foremost ranks of the crowd, through whose filmy bodies the Doir still glowed.

This time the high-powered bullet found its mark, though it must have passed through more than one of the ultra-violet beings before reaching Aispha and the mystic orb.

Furnham had hardly known what the result would be, but he had felt sure that some sort of catastrophe would ensue the destruction of the Doir. What really happened was incalculable and almost beyond description.

Before the Doir could fall from the hands of its stricken bearer, it seemed to expand in a rushing wheel of intense light, revolving as it grew, and blotting out the forms of the ultra-violet people in the foreground. With awful velocity, the wheel struck the nearer buildings, which appeared to soar and vanish like towers of fading mirage. There was no audible explosion—no sound of any kind—only that silent, ever-spinning, ever-widening disk of light

(*Continued on page 86*)

THE HELL PLANET

By **Leslie F. Stone**

(*Illustration by Paul*)

Jimson leaned over Morgan and picked him up. He bent weirdly in the middle. "It's in the bones," he explained.

THE HELL PLANET

by the author of "Men With Wings," etc.

"THERE he is. Lord! what a hot little place. Can't say I look forward to landing there particularly. Rather well named, what? Vulcan, master of the forge, maker of the armor of the mighty gods from the white heat of the flame!

"It's the find of the century, Gorely, no question of that, if only it yields a third the amount of *cosmicite** Wendell says it will. If so we'll be multi-millionaires after this trip."

"Well, at least, we won't be in the same straits that the Sellers crowd were. We know what we're up against with Wendell on hand. What a fight he must have put up to come through alone."

"Hush . . . here he comes . . ."

The pair, Tom Gorley and Jack Morgan, were standing in the forward turret of the space ship *Adventure*. Both were seasoned explorers as were all Captain Timothy Beale's crew. They had been in many odd places together, to Diane on the very edge of the solar system, but this was their first time so close to Sol, beyond Mercury. They wore the dark glasses and insulated refrigerated suits necessary scarcely more than twenty-five millions of miles from the sun.

The refrigerant units of the *Adventure*, despite the heat insulating coating of *cosmicite*, were hard taxed to keep a liveable temperature within the shell of the space flyer, but the men were not heeding the heat. They were looking forward to their descent upon the orphan of the solar system, Vulcan, innermost planet, discovered by the crew of the *Corsair* four months before.

Astronomically speaking, Vulcan had for many years in the past been conceded as a possibility by scientists. The perihelion of the orbit of Mercury moves somewhat faster than it should if the planet were acted upon only by known forces, and this fact had led astronomers to believe in an intra-Mercurian planet. The peculiarity of Mercury's motion pointed toward an attraction of a planet whose orbit lay between that world and the sun. A planet in this position could be observed only with difficulty, for its elongation from the sun would always be small. Several times in the past it was supposed to have been observed, yet others disputed the truth of such a discovery. Naturally it would be next to impossible to see this tiny planet against the glare of the sun's disc.

It had taken Captain Boris Sellers to find it, but he had not survived his discovery. Every man of his crew had died a horrible death, except Bill Wendell who alone managed to pilot the *Corsair* back to Earth with its gruesome burden of dead men, and his tale of discovery. That awful journey had left its mark on him as one could see at a glance, as he came into the *Adventure's* turret.

Although only thirty-four he looked a man of sixty. His hair had turned snowy white, his eyes were dimmed, still filled with some nameless horror which lurked in their depths. Heavy lines creased the flesh about his mouth; and his walk was that of a man whose body is tortured by the pains of senility.

Only the lure of the vast deposits of *cosmicite*, that priceless metal without which no ship could dare travel the void, had brought him back to Vulcan. He had the guarantee that half the wealth the *Adventure* would unearth would go to him and to the families of those men who had lost their lives on the ill-fated journey of discovery.

The men of the *Adventure* were diffident about addressing Wendell. He seemed to move in a world of his own, annoyed if others sought intrusion there. But today was different—he had come seeking the company of those in the turret.

He stood gazing out the thick port giving view to the world they were approaching. The window, like all the shell, was daubed with a covering of *cosmicite* put on with a spray so that it was so thin as to be transparent. But for that coating, the crew of the *Adventure* could not have withstood the terrible emanations of the cosmic and heat rays that pervaded space.

The discovery of *cosmicite* is a story in itself. One remembers the first intrepid space explorers who lost their lives in attempting to conquer space with no knowledge

LESLIE F. STONE

MANY amateur authors, with little knowledge of the complexities of the problem, have pictured men going from one world to another and quite facilely adapting themselves to entirely new conditions. These authors blithely feel that men could live anywhere; if there be only food of a kind and some breathable air.

Miss Stone takes quite a different view of that. She believes we should look on the problem of interplanetary travel realistically, and realize that the attempt to gain a foothold on a new world may be fraught with the most terrific of dangers and difficulties.

And then she asks in this story, "Why should we go to another world?" Is it, as she says, "Man's damnable desire to conquer, to nose in where he doesn't belong . . ." Our readers can answer this question for themselves; but this stirring tale gives in no uncertain terms our author's feelings on the matter.

*Cosmicite seems to have been that rare metal possessing the ability to absorb and reflect practically all rays, no matter what their wavelength. Its use on earth as a heat-insulator would have been revolutionary if sufficient quantities were to be had.

of the danger they faced when they plunged out of the Earth's atmospheric blanket. Oddly enough the man who discovered the only material impervious to the dangerous rays was one by the name of John Cosmo!

"A few hours and we'll be there," Wendell was saying in his quavering voice more to himself than those in the chamber with him. "Vulcan, the monster itself in beauty, festering in poison . . . Sellers, Tomlin, Berber, Keep, Lassier, Morton, Chin . . . all dead . . . and only I am alive to tell the story!"

"But you found the mines, didn't you?" Gorely asked timidly, suddenly realizing how little they knew of what lay before them. Wendell had, of course, explained everything to Captain Beale, but for the most part the men were ignorant of what they were to face. Men of space never asked questions; their trust lay in their leaders.

Wendell looked up in surprise at the other's voice. He studied the man before him as if seeing him for the first time in his life, though purposely he had come here seeking companionship.

"THE mines . . .the . . . oh, you mean the *cosmicite* mines. No! We did not find the mines. The natives had it. Ingots of it, statues, shields, arrows and spears tipped with it . . . they worship it like a god! *Cosmicite. Dasie* they called it. Believed it protected them from their enemies. A backward people, but they mined the metal.

"And they thought we were gods. A kindly people. They wined and dined us . . . only not me. I had a bad stomach, a recurrence of sickness of years back. I was confined to the *Corsair,* on a soft diet . . . too sick to eat or walk. I was put out by it, I imagined my companions receiving gifts I could not share. I was jealous! I avoided them.

"The fourth day I felt better. I went out to meet them as they came into the ship laden with gifts—strange fruits, meats, wines and *cosmicite.* I picked up a bunch of fruit that resembled grapes. I ate one. Then . . . then Berber, my buddy . . . he pitched to the floor screaming and retching. He was sick, something was tearing at his vitals, he said . . . he was burning up . . . fever. A few minutes and he could not speak. We carried him to his berth, dosed him up . . . then Lassier was taken sick. We put him to bed, but he wasn't the last. Another and another were taken ill . . . then the captain.

"There were only yellow Chin and I left to treat our fellows. We went from one to another giving medicine that seemed to do no good. Berber could not raise his chest to breathe now. It . . . it was as if his bones could no longer support the flesh . . . they were rotting away! The others were the same. Now Chin could no longer walk. Oh it was . . . damnable. My friends dying . . . I unable to ease them. Berber died, then Lassier . . . they all died before my eyes. Captain Sellers alone knew what it was . . . he told me . . . the fruit, the water . . . all poison. It was radium . . . the soil, the water, the growing things . . . even the natives were impregnated with it . . . and it was too rich in solution for men of Earth. It was killing them.

"I remembered the single grape I had eaten . . . I thought I felt stomach pangs already, but I had to stand by and listen to Captain Sellers telling me what to do. 'They think us gods,' he said, speaking of the natives. 'They must not know of this . . . that we die. You, Wendell, take the *Corsair* back home with all of us in it! You must not bury us here . . . There is a fortune on Vulcan . . . it is stupendous. *Cosmicite* is scarce throughout the solar worlds, but this planet is filthy with it . . . and radium . . . you must get home . . . tell others what we have seen . . . bring an expedition to mine it. Treat the natives well . . . they may be induced to tell where their mines lay . . . then all the solar system will be ours . . . thousands of space flyers can be built in place of the paltry fifty or sixty now in existence . . . but let no man *eat or drink of this world!*'

"He said more, then began to babble, and like the others it grew difficult for him to breathe. I turned away, forced my stomach to give up that bit of fruit I had eaten. I was frantic with the moans of my fellow-men in my ears. Men dying like flies . . ." He lasped into silence while he remembered.

After a pause the young-old man began to speak again. "I tried my best to ease their pain, some died more quickly than others . . . according to the proportion in which they had eaten the food of the natives. But they had had four days of it. Sellers was last to go, though quite out of his head by then. It was not easy to drive the *Corsair* without help, to plot my course and watch out for meteorites. It meant days of continual vigilance at the controls. And there were the bodies of my fellows below.

"I could not move them . . . they were already rotting . . . putrefaction had set in almost immediately with their passing. I could only cover them with sheets . . . soon the ship smelled like a charnel house.

"And I began to feel real pains in my stomach. The single grape had poured poison into my system before I got rid of it. Lucky that I had eaten no more . . . else I would not be here to tell the tale. I suffered . . . my stomach was a fiery pit, my head spun like a top, my knees were weak, and with it all I had to stay at my controls. I fought it off somehow . . . as a result I am a sick man for the rest of my days. I . . . well here I am back for more . . . and if you value your lives, men, if you do not want to die an evil death, do not be tempted by the sweet luscious fruit and sparkling waters of Vulcan . . . it's . . ."

He would have said more but Jimson, Beale's lieutenant, had appeared in the doorway. "Mr. Wendell," he called, "the captain wants to see you in the control-room."

Wendell went with him. Beale was studying the world that rapidly edged closer. They had come halfway around the sun to meet it, and now Vulcan lay in quadrature to them, its first quarter, showing them half its illuminated side. At most it was but 1200 miles in diameter, a small world whose mass was surprisingly great in proportion to its size. Wendell had already explained to Beale that Vulcan's surface gravity was in excess of that felt by men of Earth when upon the moon. That was because it was made up of the heaviest of metals. Now the captain wanted to know if Wendell knew where they were to land.

In half an hour the little world looked like a bowl with its upturned edges. They were circling it, passing from the light into the darkness twice. They saw it had no really large areas of water. There were innumerable lakes and rivers, but nothing that could be rightfully called a sea. There were mountains in one hemisphere, but for the most it was flat or slightly rolling country. One thing was particularly noticeable about the night side,

the fact that the vegetation gave off a ghostly light, glowed of itself like phosphorus. The lakes were molten silver, the jungles a riot of wild color.

AS they dropped closer Beale saw that landing was to be a problem. Never had he seen a more fecund world. Nowhere could they see the ground, so heavily was it grown with tall spiky trees, fleshy vines and spreading shrubs. Even the banks of the waterways were overgrown, heavy with life. At Beale's query, Wendell shook his head. Just so had the *Corsair* found Vulcan. They could blast an opening in the trees for themselves, but if they wished to find natives it would be best to cruise about until they sighted a clearing, a man-made clearing.

By laboriously pulling out the trees, the men of Vulcan made a council-hall for themselves. In one of these clearings the *Corsair* had found a ready berth, nor had the natives appeared to resent their using it. The *Corsair* had found the village near the north pole. Wendell had left too hurriedly to be sure of finding it again, but he imagined they could find another like it.

Every man able to get near a port-hole was made a lookout. Twice they circled Vulcan again and were rewarded. A circular opening in the jungle lay below, just large enough for the *Adventure* to fit with little room to spare. Wendell did not believe it the same clearing in which the *Corsair* had landed, but it was likely enough with a promise of a village nearby.

With wondering eyes the men stared at the queer life about them, for it was even stranger than it had appeared from above. The trees were for the most part a hundred feet high, straight, slender with trunks that resembled those of a palm tree: smooth, glistening, barkless; but the branches that jutted from their crowns were unlike anything they had ever seen. They were long, stiff, needle-pointed spikes with a feathery lacy froth of needles. The branches were no more than three to four feet in length, solitary and uncrowded. The only shade cast by the whole tree was the straight unvarying image of its pole-like length.

Vines clung somehow to the unyielding trees, vines that dropped festoons of needles from their length linking the jungle trees together. Around the trees was growing a veritable mat of stiff-stalked young trees; bushes, stocky plants, all with underdeveloped spiky leaves and branches. Only on the ground was there a growth with a fleshier leaf—broad and flat, prone to the soil. The bushes mostly resembled palmettos and cacti.

Nature, at first lavish, had turned about-face and with niggardly hand finished her work, stinting the land of her natural abundance. Then she had remembered and was more prolific, for on each tree, weighing down the vines, bending the backs of the shrubs, palmettos and cacti were the fruit clusters. Red, yellow, blue, orange, green they were; long banana-shaped fruit, globulars of all sizes, berries, melons—round, oval, cylindrical, every shape and form; luscious peaches, over-sized pears, mouth-watering berries, scarlet cherries, purple grapes, juicy plums, golden oranges . . . all were here in wild profusion, in wild fecundity.

"It's the sun," explained Wendell. "Were the leaves of the trees broad they would absorb too much vitality beside that already partaken of from the radioactive soil, hence they would shrivel and die under the glare of the white-hot sun. Nature can be more prodigal with the fruit because there are enough to make use of it . . . See . . ." He pointed out flocks of tiny birds, no larger than humming birds darting among the fruit, the swarms of insects feeding in armies, the dainty head of some animal feeding on fruit fallen to the ground.

Another creature that looked like a cross between a bear and a monkey was climbing a tall tree toward an especially appetizing cluster of fruit hanging by a slender cord from a vine. The fruit proved just out of reach of the animal, but with infinite patience the bear angled for the prize with long forelegs. At last, unable to gain the fruit by that means, it let go its hold upon the tree-trunk to make a lunge for the fruit cluster, and landed upon it with all four feet. The vine held and the animal went about the prosaic business of harvesting its dinner without a care as to what would happen when it ate away its support.

A shadow fell against the trees and ground. Glancing up the men saw an unusually large, brightly-plumaged bird plunging downward. Through the thick walls of the ship they could not hear its cry, but they could see its paralyzing effect upon the flock of humming birds which for the nonce seemed suspended on quivering wings unable to move forward or backward. The killer had time to swoop down, gobble a third of their number before their brains began to function properly again, and they could escape. The big fellow made no attempt to follow. He simply turned to the fruit nearest at hand and commenced to gorge himself.

Beale and Jimson, standing with Wendell, grew aware of even more life in the jungle. Birds of every size and description flew through the trees, creatures lurked among the vines, snakes and tiny furred things raced up and down tree trunks and vines, flinging themselves through the air. There was life on the ground, peering from between the heavy, thick leaves of the vines that crawled upon the earth's bosom. Suddenly Wendell was pointing out a strange apparition to his companions.

It stood staring back at them from between two tree trunks, a creature five feet tall, upright on two legs. It had a small pointed face that was fox-like, yet faintly resembled a human face! The head was round, bulging upward from heavy beetling brows. The ears that came to a point at the top were set on the side of the head slightly below the level of the large black eyes. The nose was long, pointed—the cheeks and jowls sloped forward adding to its animal-like appearance. The mouth was wide, the chin rather heavy-set, incongruous looking to the rest of the face, giving it its humanness that was otherwise lacking except in the rather intelligent set of the large beady black eyes.

CHAPTER II

Men of Vulcan

THE face and body were bare of hair, the skin a slate brown. The body was proportionately slender to its height, in repose it leaned forward so that the thin arms dangled below the knee. Hands like the face were free of fur, delicately-boned, almost claws.

"It's the man of Vulcan," averred Wendell. "Or at least we called it a man, for such were the creatures we encountered before. This clearing is their meeting hall.

They live back among the trees. If these little fellows are like the others they will have *cosmicite* in plenty!" He was excited.

"What shall we do?" queried Beale.

"Nothing. Wait. More will come. They are peaceable, or so the others were. Let them see we mean no harm. Let the men stay at the windows—come and go—act natural."

For two days no attempt was made to communicate with the strange little "men" of Vulcan. All the crew were now familiar with their bizarre appearance, their fox-like faces, their twitching ears that always seemed in movement, their stiff gawky walk, their strangely shiny bodies. For the most part they seemed unarmed, only a few carried a strange type of ridiculously small bows and arrows. What interested the Tellurians the most was the fact that the arrows and a few spears that appeared now and then were tipped with white metal *cosmicite!* The metal seemed in common use among the Vulcanites, yet at the same time was held in veneration. They wore strings of it about their necks from which dangled either round nuggets of the same material, or tiny, crudely-carved figurines, amulets. They wore queer elbow and knee-shields of *cosmicite*, curved plates that fitted over the joints and were held in place with thongs. Some had bits of *cosmicite* wire twisted about both head and body, and a few carried broad round shields of it on the left arm.

The very inactivity of the *Adventure's* crew seemed to have gained the confidence of the natives. They had drawn nearer and nearer to the space ship, studying its exterior first from afar, then dared to lay reverent hands upon its shell. They appeared to have discovered that it was coated with *cosmicite*, and this homely truth had wiped away the last vestige of their fear. They could understand that!

One little fellow, more daring than the rest, enticed two of his fellows to form a living ladder for him to climb upon their shoulders. That brought him up to the level of one port-hole in the ship's side. There were two of the men within, and for several moments the three stared at each other—the two curious, the fox-man awed by his own daring. From them his eyes flitted to the room beyond. For the moment the savage forgot everything else as he stared at the strange furnishings. Then suddenly he swayed and toppled from their sight. His ladder had given way!

He picked himself up, and they saw him racing across the clearing and into the jungle, all atitter to tell his friends what wonders he had seen.

On the third day Wendell, Beale and Jimson sallied forth from the flyer. They wore the lead-mesh under-suits Wendell had insisted be brought along, shoes with thin lead soles, helmets of lead-mesh that had visors over the face that could be raised at will. Their gloves were heavy with lead. Lead alone would protect them from the radium emanations that had killed the men of the *Corsair*. Besides this they wore dark glasses to protect the eyes against the excessive sunlight of Vulcan. Only the small gravitation on Vulcan's surface, but one-sixth that on earth, permitted the men of earth to burden themselves with hundreds of pounds of lead. The men knew, were they to obtain sufficient *cosmicite*, that a thin covering of it would protect them from all dangerous rays, and these ungainly space suits would no longer be necessary.

Through the trees they could see fox-men scurrying away in sudden fright. Wendell led his party to the edge of the clearing, then deliberately stood there gesturing broadly to his companions as if explaining things to them. The natives did not run far, soon the three were aware of many eyes upon them. A half hour was wasted away as the Tellurians permitted the Vulcanites to grow accustomed to their strange appearance. Now Wendell drew forth his light service air-pressure gun and with a great show of pantomime pointed out to his companions a giant bird that hovered over the clearing. He aimed his gun. There was no explosion, but the bird fell almost at the men's feet.

It was Jimson's cue. He acted as if Wendell's feat were too simple for words, and pointing out a cluster of high-hanging fruit he drew his needle-beam pistol. Scathing fire leaped from the gun, played on the fruit and charred it so that it hung there a mass of cinders. Whereupon Beale with wider gestures drew forth the more deadly weapon, the cathode atom-destroyer. A thousand feet away stood an unusually tall tree, rising almost two hundred feet into the air. Upon it Beale turned his ray. The white light was blinding and the tree was no more!

Without a word the three turned and hurried back to the flyer. A great burst of sound rose from the jungle, the awed voices of the fox-men. Surely, come what may, they would carry in their hearts a deep reverence for the men of the *Adventure*.

The following day the three again went into the clearing. The men crowded about every window port to watch their reception by the natives. They could see a number of the little fellows lurking among the trees. The appearance of the three in the open seemed to be a signal long awaited, the undergrowth was suddenly thick with the shiny-skinned men. There was some hesitation among these, but after a few minutes of this indecision the three realized they were merely awaiting the arrival of several personages who could be seen hurrying down the path that led from their village.

These were seven creatures from whose path the others crowded away. They were taller than the average fox-man, broader of shoulder, heavier of limb, with faces that were shrewd, intelligent. Like their fellows they were unclothed and they, too, were ornamented with bits of *cosmicite*—but their shields were larger and heavier.

What made them stand out from the others was the color of their skin. It has been noted that the natural color of the Vulcanites was a brownish-grey, whereas in the case of the seven chiefs (for such they proved to be) no two were alike. The foremost was white, a pure virgin white made possible by some bleaching agent. The second was red, a bright naked red. He was followed by a third whose skin was green, a fourth blue, and so on through the colors of the spectrum, bright garish colors like those that filled the jungle.

THE white-coated native was evidently the leader. He came striding forward filled with the importance of this occasion, cynosure of all eyes. As he drew near the Tellurians saw that in addition to his *cosmicite* trinkets he wore a head-dress of feathers that stuck up from

his pate several feet, permanent fixtures glued tightly in place. Also he wore wristlets of the precious white metal besides his knee and elbow shields, and when he turned about they saw a long hairless tail of some animal securely fastened to his person.

Later when the Tellurians learned enough of the rudimentary language of Vulcan, a common tongue used by all tribes, they discovered this imposing creature was Rafel, elected chieftain of his tribe that numbered no less than three thousand males. (Females and young were not counted in the census.) There were six hereditary chiefs (*tuco**) who once every six years** were selected from among their families, one chosen to be their official representative. Once elected he could not be deposed during his reign, the very chiefs who put him at their head were as much his subjects as the lowliest *muli*.*** His power was of life and death.

Rafel not only directed the civil welfare of his people, but was also their spiritual leader. And since there were no less than a thousand gods and devils in their Pantheon, his job was not one to be sneered at. Yet, with it all, he turned out to be a kindly if not kingly fellow. His dignity sat not too heavily upon his shoulders and he proved open to reason. Like all savages he feared most to lose face, to be made a fool of! He believed without question that the *Adventure* had come from the sun. Had he not seen the "sky-boat" come out of the sun itself? He considered his tribe unduly honored by the visit.

He came leading the procession of emblazoned *tucos* forward, halting at the edge of the clearing. Wendell, Beale and Jimson had taken but a half dozen steps from the airlock, permitting the first move to their "hosts." And for all his apparent efficiency, Rafel was for the moment at a loss as to what he should do on this unprecedented occasion. A chieftain of three thousand adult males, however, must have recourse to doing the right thing at the right moment. After his single minute of indecision he was suddenly a typical "greeter."

Standing just within the clearing with the circlet of trees at his back, the chieftain threw wide his arms as if to embrace the universe, and began to recite what was undoubtedly a prepared welcome speech. It was long, twenty minutes of it. Jimson nudged his chief. "The chairman of the Rotary Club back home ought to be in on this. All that's missing is the key to the city."

"Hush, I think it's coming now," whispered Beale.

For Rafel had raised one arm high above his head in signal to those behind him. Now the six elaborately-colored *tucos* came forward bearing a burden between them. It lay suspended upon a square of woven grasses, a tiny statuette. No more than six inches tall it was of exceedingly crude workmanship, a figure of *cosmicite*. It took Beale and Jimson several moments to discover that it depicted a rather ugly little fox-man, shiny-skin, squatting on his heels and holding a round globe (also of *cosmicite*) between its knees which it contemplated.

"It's a god, possibly the god of the sun," explained Wendell, who had seen a like figurine on his first landing upon Vulcan. They could see that the six carriers held the figure in deep veneration. They halted before Wendell, waiting for him to do something about it. Jimson nudged him. "Take it!"

Wendell did not listen to him, but merely raised a hand as if in blessing, and by the expression on Rafel's face they saw he had done the right thing. The seven were grinning broadly. Then, at Rafel's signal, the six *tucos* retreated back into the trees carrying their god with them.

"That's one up for our side," grinned Jimson.

Rafel waited until his companions were out of sight, then gave a second signal to his people. This time it was not the gaily-colored chiefs who answered his summons, but a dozen slate-brown *mulis*, each carrying a grass-matting basket on his head. At Rafel's signal they lowered them to the ground. They contained a variety of fruit, a sort of meal-cake, the raw flesh of strange animals, water and nuggets of *cosmicite*.

WENDELL made no motion to accept the fruit, but he did stride over to the single basket of *cosmicite* and select from the top a single nugget. He motioned for the captain and Jimson to do likewise. When that was done he waved an arm over the baskets. But this time Rafel did not understand. A frown appeared between his beady eyes.

In a rasping voice he called out three words. There seemed to be some delay, but after five minutes or so a dozen more slaves came running forward with twelve more baskets on their heads. These contained the same variety of food, the twelfth, *cosmicite*. Rafel watched Wendell anxiously, but he only shook his head, and sought again to wave the baskets away. Again Rafel called out three words, and though the delay was longer than before, twelve more baskets appeared!

Wendell realized if something was not done to halt the procession the *Adventure* would be surrounded by baskets. It took him ten full minutes to make Rafel understand that his men and he had no use for the food and water, but that the *cosmicite* was acceptable.

The chieftain understood at last. He called a word to his bearers to carry off their burdens again, leaving the three baskets of metal. Jimson turned to the ship, motioned for men to come through the lock and carry away the baskets. Rafel waited quietly with arms crossed while this was done. With signs he made the men understand they were now to follow him.

He led the way down a well-worn path through the trees. The natives stood back from the path watching them pass. They had glimpses of both women and children with dumb animal faces and round pot-bellied figures.

A hundred yards from the clearing the village began, if such could be termed a village. There were no houses, just burrows in the ground entered by round holes covered by a trapdoor of matted grass, vines and jungle debris. When dropped in place no one could guess at the teeming life that dwelt below. The jungle life went on above ground undisturbed, food ready for the hand of man.

After passing a dozen openings Rafel led his guests through a trap only more imposing than its fellows be-

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*It is difficult to give Earthly equivalent to Vulcanite terms. There were scarcely more than a hundred words in the vocabulary, and many proved obscure to the Tellurians. The term tuco was applied by the fox-men to anyone or thing of high rank. Gods, men and devils were all tuco!

**The year of Vulcan is only fifty-four Earth days long, but since Vulcan rotates on its axis once every 39 hours its sidereal year is sixty-eight and a fraction Vulcan days long

***muli , captive, applies to both man and animal. The main motive of war between tribes is for the securing of slaves. Rafel's tribe numbered more than four thousand muli, male and female.

cause of its larger size. There was a crude ladder of pegs set in the straight wall ten feet down. Down the ladder they found a large room roughly fifteen feet square. It was not dark, for the walls sparkled with bits of shining pebbles that gave off a dim eerie light; while in the center of the chamber was a large piece of jagged ore, the size of a man's head, emitting light.

Jimson pointed out that this light-bearing ore was one of the several radioactive salts. He had been to the radium mines of Luna and had seen like ores. With that inexhaustible supply of the precious element so close to home it would be centuries before men of Tellus would turn to Vulcan for their needs. Beale was glad they were wearing their leaden suits. No wonder Sellers and his crew had died so horribly. A few hours' exposure to those rays and death was inevitable!

Evidently the bombardment of the radioactive rays did not affect the fox-men. Instead, were they taken from their natural environment they would most likely perish for the lack of the emanations that were part of their beings. Poison to one, life to another! Possibly, too, the food of the Tellurians would be as poison to them as the fruits of Vulcan were to the Tellurians!

Glancing about the room the three wondered about furniture, but for some mats of moss in one corner the chamber was quite bare. Rafel solved the problem by pointing to the floor. The six *tucos* who had followed them into the chamber squatted behind Rafel who took his place facing the white men. The chieftain made several queer cabalistic passes through the air and a number of women came down the passage with metal bowls of food which were placed before each man. There was some half-cooked meat, fruits and a thick gruel. Wendell motioned to show that neither he nor his companions would partake, but that did not deter Rafel and his fellows. They nodded their understanding and "fell to" noisily. For the next half hour the three had the pleasure of watching their hosts gorge themselves.

After the first few minutes of watching the fox-men enjoy their fare, Beale decided it not amiss to discuss their situation. As the three talked Rafel eyed them covertly, but his glance was only friendly interest.

Judging by the three half-filled baskets of *cosmicite* presented to them, Wendell conjectured that the metal was not too plentiful in the village. There was no sign of any in the room in which they sat, except upon the persons of the chiefs. Possibly the three baskets were all the superfluous metal in the village. By force of arms they might denude their hosts of what remained on their persons, but that was not what they wanted. They must know the source, the location of the mines themselves. There was but one way to find out. They must learn the language of the fox-men. Beale decided upon taking the easiest and quickest course.

CHAPTER III

The Gods Speak

ATTRACTING Rafel's attention, he pointed to himself and said "Beale." After a moment's hesitation Rafel pointed one thin finger at himself saying "Beel." The captain shook his head, and it took him a number of minutes to make the chieftain grasp the fact there was only one Beale. After Rafel got that into his head it was easier, and with some coaching they learned his name. It was slow progress, but Rafel at last learned that Jimson was "Jimso" as he called him, and Wendell was "Wemdal." Then elaborately he named all his six fellows.

With that lesson fairly well learned, Beale pointed to Wendell, Jimson and himself collectively, and again after a great deal of waving of arms and patience he learned that the fox-men were called "Tolis."

Henceforth it was simpler. Beale had but to point to an object to obtain its name. Jimson had found a pencil and pad and jotted down each new word with its equivalent much to the fox-men's wonder. The room in which they sat was a "kel," the floor, and this included the ground as well, was "get," good "gimgim," *cosmicite*, "*dasie*" and so on.

When his teachers began to yawn unselfconsciously, Beale realized how late it must be. Rafel appeared disappointed they would not stay the night. Wendell, Jimson and he were feeling their own hunger now and were anxious to get out of their heavy suits. Rafel ushered them forth into the growing dusk with great aplomb.

Even before all the light of the sun was gone, the jungle was changing in aspect—the ground, the trees, the very fruit and even the bodies of the men of Vulcan were beginning to glow of their own light. It was as weirdly beautiful as it was strange. Beale and Jimson recalled they had seen the same thing on the night-side of the planet with their arrival. Wendell pointed out that everything here was luminous because of the high percentage of radium that was absorbed by every organic thing.

By the time they reached the *Adventure*, the full wonder of the eerie night was upon them. Every tree trunk, every tendril of the vines, every separate spiney leaf, every berry was plainly outlined as though in silver. Night insects just beginning to stir, carried their own lanterns; the birds were streaks of brilliance against the black moonless sky. Altogether Vulcan was an unusual world.

It was more than a week before their real mission could be spoken of to Rafel. During that time Wendell, Beale and Jimson spent most of their time in the company of the chieftain, learning his tongue and the customs of these savage little people. Twice Rafel had been taken into the *Adventure*. He seemed quite willing to devote all his time to the strangers; awed by their presence, he took childish delight in their company. He did not question. If they wished to enlighten him about themselves of their own will that was sufficient. The *Adventure* was something outside his realm, incogitable.

The men of the crew were not so patient. They could see no good reason for this dalliance. They recommended stripping the natives of their ornaments and forcing them under pain of death to tell where more was to be had. They were free to wander about the "settlement" as they pleased, but in most cases one visit to the burrows of the Tolis was enough. Only a few of their number bothered to learn the tongue of the shiny fox-men. Then they had their first "accident."

It was nearing sunset of the short Vulcanite day, when Jimson standing at one of the ports saw Warren and Yarbow running through the trees as if in mortal terror of their lives. Wendell was at his side.

"Good Lord!" cried Jimson at sight of the racing men.

"Have they gone crazy?" His eyes went beyond the men, trying to discover if they were being chased by natives, but in the deceptive ghost light of the verdure it was difficult to see.

"They run from themselves . . ." said Wendell quietly. "Get them into the ship before any natives see them as they are . . ."

"What do you mean? What has happened?"

"Go, open the lock, I tell you!"

Jimson cast one more look out the window. The men had reached the clearing, but Warren had stumbled over a vine and sprawled on the ground. Instead of picking himself up he was rolling about wildly, clutching at himself, trying to reach a dozen places at once, but Yarbow stumbled forward unaware of his companion's antics, his face a horrible mask of twisted pain.

Jimson needed no further urging to get down to the lock. He passed a man in a corridor and ordered him to follow. Yarbow fell through the doorway as it was pulled open from within, but Jimson did not pause; he ran out to where Warren still squirmed in the throes of some mysterious attack. The poor fellow was almost gone when he reached him; and Jimson had to carry him, a dead weight, into the ship.

Beale had been summoned and was trying to ease Yarbow's pain, but the pair were beyond help. They moaned and screamed alternately, seemed unable to breathe; their eyes grew glazed rapidly. In half an hour Yarbow was dead, Warren followed quickly.

Wendell had a ready explanation. "Two days ago I saw them eat some fruit . . . I warned them, but they laughed at me. I've been watching them, but they must have slipped out this afternoon behind my back. Lucky they had sense to get back here without the natives seeing them die. You'll have to bury them in the dark . . ." He turned and went away without another word.

Someone muttered behind his back, another began to curse this unnatural world. Beale demanded silence. Tomorrow, he promised, he would confer with Rafel about the mines.

IN a world abounding with the heavier metals, the Tolis were a race possessed of little science. They used stone knives and hatchets, stone-headed spears and arrows. They knew fire, but nothing of smelting ores. *Cosmicite* was found in nuggets, and these they fashioned by laborious hammering. They had nothing that might be considered luxuries. Because of the nature of the planet they had no need for clothing. Everything beyond their limited comprehension was magic, every tree and bush had its god. The sun that lighted their day was the Great Leader. The spirit of the *cosmicite*, or *dasie* as it was known to them, was their second-best god, considered superior in many ways.

An arrow or spear-head tipped with a pellet of *dasie* went true to its mark regardless of the aim. The archer who failed to kill his enemy was impure of heart, therefore undeserving of the fidelity of the god! The same was true of food eaten from plates of *dasie*. If the food poisoned the diner, his unclean touch had vitiated the power of the god's strength.

True to his word, Captain Beale addressed Rafel the next morning. He managed to convey to the chieftain in the mongrel dialect the Earthmen were using to make themselves understood, the fact that there was a shortage of *dasie* in the land of the sun. He explained that he and his men might easily have taken as much *dasie* as they desired without the men of Tolis being the wiser, but the ways of the Gods were not thus. The *dasie* belonged to the Tolis by right of virtue, and therefore the Gods instead of taking what they wished by force were asking as a favor, an adequate supply of the precious "stone." The three baskets Rafel had so open-heartedly given were but a drop to their real need.

As he spoke Beale was watching Rafel narrowly. He saw the frown that came into the chieftain's face and knew he was treading delicate ground. The coming of the Gods to the fox-men was a great event in their lives, an unprecedented break in the monotony of the jungle, and thus far had cost merely three baskets of *dasie*. This demand for more *dasie* was different, and Rafel wisely knew it was a demand. Rafel had been witness to the target practice of the Gods on the third day of their coming, and he was intelligent enough to know that what had been done to birds and trees could be accomplished on man.

Beale said a little more, but knew he had already won his point. Magnanimously he gave Rafel until the following morning for his answer, knowing well enough what the answer would be!

And sure enough the first hint of the rising sun brought Rafel into the clearing. He began the ceremony with flowery protestation of undying goodwill, exhorting the captain to carry to the Great Leader word of his worthiness. Then he was waving to his fellows who came bearing between them on its cloth the little statue they had seen the first day.

When the figurine was borne away Rafel gave his second signal. Only ten days before the coming of the "sunboat" Rafel had been to the mines. And here came twenty men bearing on their heads well-filled baskets of white metal. The eyes of the crew of the *Adventure* glittered at the sight. Nuggets ranged from the size of peas to double the size of a man's fist. This meant vast fortune for them all, even after Wendell had taken his lion's share!

Forgotten were the mines, the possibility of even greater wealth, but not so Wendell. He could not forget.

Afraid the sight of the metal had robbed Beale of his reason, Wendell took the fore. He scarcely glanced at the baskets. Then he cried. "No, no, take it away!"

Rafel's surprise was no greater than that of Beale and Jimson. The men staring out the windows of the *Adventure* did not grasp what Wendell was doing. Beale and Jimson wanted to protest, but Wendell flung them both an eloquent glance from his heavy brows. Rafel was protesting, unable to comprehend. Not enough? He paused but a moment, waved again to his men and they went off—to return with twenty more baskets. Rafel looked to Wendell for approbation. The eyes of the others were starting from their heads, unbelieving.

And all Wendell did was to shake his head. "Take it away, all of it," he told Rafel.

Rafel struggled between two emotions, one of joy that the *dasie* was not to be accepted after all, the other . . . fear for the same reason. Beale and Jimson murmured protest behind Wendell, but he did not appear to hear them.

Instead he stood by stoically waiting until every basket

had been carted away. In the *Adventure* men cursed, cried against Wendell, but unknown to them . . . he had securely locked the heavy porte of the ship from the outside!

Now he gave his full attention to Rafel, to explain through the poor medium of the savage tongue what the trouble was . . . That the Great Leader would consider it a great sin if his messengers deprived the fox-men of their precious stone.

In answer Rafel grinned. Surely, he thought, the Great Leader would know that there was more *dasie* to be had, that it was but a five-sun walk to the mines. He and his men could replenish their stores quickly enough. The Tolis gave with willing heart. Let the men bring back their burdens!

Still Wendell shook his head. He sought again to make Rafel understand. The *dasie* of the Tolis was of no use to the Gods. It was, as all other "stone," useless. The Gods could not dare accept that which had come to them from other hands. Just as the *dasie* of the Tolis was contaminated if touched by alien hands, so was the *dasie* defiled that had been handled by any but the Gods themselves!

AND this time Rafel comprehended it. He was abject in his misery. In his generosity he had not considered this contingency. He was only glad the Gods had not struck him down in their anger. He must go now to discover when the spirit of the *dasie* would concede it propitious for a new expedition to start for the mines, when he and his fellows might lead the way.

Wendell had to be agreeable to that, and Rafel went away with a promise to be back on the morrow. Now he had to placate the men of the *Adventure* for his refusal of the forty baskets of *dasie*, pointing out that if he had his way there would be forty times forty baskets to be had, more than the *Adventure* could hold if they but listened to him.

The next day Rafel came to advise them they must wait two days before they could start for the mines; for so his spiritual aides had decreed.

The men grumbled, but otherwise were quiet. They strolled about the village watching the preparations taking place for the march, particularly those of Rafel who had something in a pot that boiled without fire. And the chieftain was eating *cosmicite*. An open dish in the center of his burrow held a pebbly dust of it, and whenever he thought of it he would take out a small crumb and placidly chew and swallow it.

At last Rafel was ready to announce the start. To the men of the *Adventure* it did not look like much of an expedition. There were ten natives in the party—Rafel, the six *tucos* and three youngsters, sons of two of the *tucos*. In small sacks of woven grass each man carried a supply of sun-dried meat, and except for two of the boys carrying heavy stone knives to cut their path through the jungle, they were otherwise unarmed. Rafel carried several implements of his trade, one *tuco* carried a bowl of what turned out to be holy water. Their drinking water and supplementary diet of fruit would be found on the way.

Beale had expected to go with his men in the *Adventure* to take the natives with them to point out the way, but Rafel piously vetoed such a suggestion. First, he declared, the trek to the mines must be made in a spirit of humility, the "sun-boat" made too much racket, and the spirits demanded silence; second there was no clearing large enough to contain the *Adventure* within many walks of the fields! No, they must go afoot as his forebears had gone afoot for a hundred generations.

This put a different complexion on things. It meant five days of marching in heavy leaden suits under the burning sun, the matter of carrying enough food tablets and water to last the entire trip, beside their mining implements. Beale tried to argue. The *Adventure* could make its own clearing a day's march from the mine, but in this Rafel proved adamantine.

There was a short conference in the *Adventure*. There would be no need for all to go. At most six men could do the work. They would locate the mine, take its position by sun and stars as well as landmarks, and bring away only samples, a small supply that each man could carry comfortably. Later when the natives thought they had returned to the sun, they would drop upon the mine, blast a clearing for the ship and load it with all it could carry.

It was decided Beale would stay with his ship. Jimson would take charge of the expedition. Five were chosen to accompany him: Arth, Morgan, Talbot, Ware and Petrie, the youngest and heartiest of the crew.

The trip would consume ten days of travel, and with a day stop-over at the mine it would mean eleven days in all. Against accident they would carry food in the shape of tablets and water in airtight canteens, each man his own share, a twelve-day supply. In addition to other things, Jimson carried a tiny wireless to keep in touch with Beale once they reached the mine.

It was noon before they could start and Rafel was impatient at the delay. The men's packs were hastily packed, but at the first stop that night they would straighten them out. Each man carried his revolver against unforseen dangers. It was with much misgivings that Beale saw them go weighted down like deep-sea divers. Did he have a premonition of disaster? He managed to shake off his forebodings to wave cheerily as they disappeared into the trees.

Their direction lay opposite to the village, but for half an hour the men could still glimpse the towering outline of the *Adventure* through the trees. Then they dropped into a low valley, and it was gone from sight. They were now entirely dependent upon Rafel and his garishly-tinted crew.

After a few hours under the brilliant sun, Jimson wished they might make the march in the cool of the night, but the fox-men feared the night with its ghostly shapes. The eerie appearance of the luminous vegetation coupled with the fact that the *yal*, a catlike creature, roved the night, forbade them stirring from camp with the setting of the sun. Instead they must travel beneath the hot sun; and there was little shade to be had amid that forest of narrow trees with their sharp, spiny blades of leaves.

The natives, naturally, were not discommoded by the heat. Whatever it was in their blood or chemical structure that permitted them to eat freely of the radium-impregnated food, also made the terrific heat of this world as nothing to them. The three youths cutting the path through the thick jungle seemed scarcely wearied after a day of wielding the machetes with which Beale had provided them to replace their own heavy stone knives.

CHAPTER IV

The Lure of the Planet

UNDER Jimson's vigilant eye his men husbanded their water carefully, drinking only four times during the day and then sparingly. At each meal (the natives ate four times during the nine-hour day) they ate two of their food lozenges. Health sustaining though they were, however, they were none too appetizing and had to be taken with water to wash them down. All in all it was grueling work to push through the fetid jungle; but these men were accustomed to work of this sort. They had chosen this life in preference to sitting behind a stuffy desk in their own stuffy world, and this was not their first experience in an alien jungle. The new thing was the terrific furnace heat.

Heads down, eyes turned to the ground, sweating under heavy suits, averting eyes from the luscious fruit that hung invitingly everywhere in clusters from the trees and vines, the men pushed on. They turned their backs, perforce, upon the water when camp was made beside some creek, river or small lake. They talked among themselves of other things when the strange drilling of the webe bird, a creature like a woodpecker, became too nerve-wracking, and they counted themselves lucky that the swarms of insects rising at every step from the rich mold underfoot could not find them through their heavy garments. Balm in Gilead! They slept deeply, and oftimes on the march broke out into gay song. So have men of the past given chase to elusive fortune, and so will they in the future.

Rafel, following on the heels of Jimson, listened reverently to the chatter of the Tellurians. His heart swelled at the sound of their song. Since the spirits had been agreeable concerning the coming of the Gods to the abode of the *dasie*, he knew no qualms. He appreciated the fact that he was deeply honored in that the Gods had sought him out to be their guide and friend. The Tolis never lifted their voices in song, but by the time the party reached the mines the fox-men could repeat the words and hum the tune of Jimson's favorite song, "When you and I were young, Maggie!"

It was on the noon of the fourth day that it was discovered that Ware had only brought one canteen of water with him! In the excitement he had left the others prepared for him. It was a blow to all six, for it meant the rest would have to share their precious store with him. They managed to laugh it off and make ribald jokes for the benefit of the culprit. But Jimson worried. An accident like that could cripple the whole expedition. Lucky they carried an extra day's supply.

Then they came to the mine. The "mine" was situated in a cave of an underground river. The cave's entrance was cleverly hidden, but before it could be opened Rafel and his fellows had to perform rites to propitiate the god. This solemn ceremony included a soundless dance, the sprinkling of holy water around the surrounding territory, and a long silent prayer in which all nine shiny men squatted in a row, heads touching their knees for three hours. Using this time to their own advantage Jimson and his men crept over the ground, carefully taking their position by the sun, studying landmarks and the lay of the land. They explained their absence as to having to do with their own rituals.

At last, to the satisfaction of everyone, the cave was opened. They went within, stopping every few feet while Rafel said prayers and supplicated the spirit residing herein. The cave was almost as brilliant as day, due to radium salts imbedded in the walls and ceiling, and by its light they saw they were on a shelving beach of a subterranean river. Its banks for several hundred yards in both directions was strewn with nuggets of *cosmicite*, nuggets of every size, many as large as a man's head. They could see the metal shining on the shallow bottom of the river, lying in full sight, waiting for the picking!

Jimson and his men were filled with boundless joy. Because of the double curve of the river at this point they could see but a small portion, and could only guess what lay the full length of the river, and at its source. It was unbelieveable. They wanted to fill their sacks immediately, to rush back to Beale with their news. But Rafel was not through with his rites. It was dark outside when he finished, and that meant they must eat, sleep and await the new day before they might gather the metal. It was really four days before Rafel was ready to return to the village!

A different prayer had to be said over each nugget as it was plucked from its bed. Then Rafel insisted that each man take away in his knapsack as much as he could carry! He stood by while each bag was filled, making careful estimate of the weight of each man in proportion to how much he could rightfully bear on his back. With each man laden down there was more prayer, and the ceremony of putting the lid back upon the cave's mouth. This took a full day for Rafel had to be satisfied that the cave entrance was safe from detection. And another full day of prayer before they could dare take their departure!

Jimson was beside himself with chagrin long before that. And he was deeply worried. His men were already on short rations. Prepared at the most for twelve days, they had been out nine days already and the return trip still to be made! He could not believe Rafel had purposely not mentioned this enforced stay-over. On being asked how long the journey would take he had truthfully told them five days each way. The natives did not care how long the entire trip consumed. Was there not food and water in plenty all along the way?

AND there was the matter of water. Ware's shortage made their predicament worse. Water inadequate for five had to be divided among six. And to make matters worse Jimson could not communicate with Beale. The wireless was useless, there was too much interference. All he could raise was static; the radioactivity of the planet made wireless impossible. The men waved aside his fears. "We can do on four lozenges a day instead of eight, and we'll go easy with the water. Don't worry, Bill, we can't lose out now . . ." They had known times as bad as this before.

At night Jimson lost good hours of sleep tinkering with the radio. If only he could reach the *Adventure* . . . it could meet them halfway. But he was without success. Then they were ready for the return. Some of the men surreptitiously dumped a portion of the *cosmicite* from their knapsacks, but the others were more greedy. Beale had promised they could keep all they brought with them

without counting it among what was to be taken aboard later.

During the first day of the march they showed no sign of fatigue. They sang and joked as they strode along behind the machete wielders. They were not returning the way they had come. Rafel explained that to do so would mark their path too plainly for lurking enemies; other tribesmen were always on the lookout for new *dasie* mines. Hence they struck off on a slightly changed course, and on the second day arrived at an impassable river!

It meant building a bridge to cross it. The fox-men had become highly excited at the sight of the vicious river. They claimed the gods of the river was angry and had to be pacified before they could cross!

Half a day was spent in prayers before trees were felled to make the bridge. That in turn had to be tossed into the river once they were across. Here the Tellurians suffered their third misfortune. As they crossed the rude bridge Talbot fell! Losing his balance he was gone before the others could come to his aid. He toppled into the torrent and was swept from sight immediately, drawn down into the whirlpools, broken on the ragged rocks a quarter of a mile below.

Jimson placated Rafel with the explanation that Talbot had suddenly decided to return to his heavenly abode in the sun via the river. The Great Leader had recalled him. Eager to believe, Rafel accepted the story. He was awed beyond measure to have been witness to the passing of a god!

It was a pity Talbot had carried his water with him, however. Jimson had told him he was carrying too much *cosmicite* for his own good, but he had been one of the greedy. That was perhaps the reason for his fall. Morgan averred Talbot had picked up nuggets discarded by others.

Altogether they spent a day and a half beside the river.

The next day they found their canteens dry! With all their precautions the terrific heat of the unshaded sun had evaporated all that remained. The sun winked out at last, lay low on the horizon. A cool breeze stirred the tops of the jungle trees, relief of a sort. The men knew what they faced. Four days under a pitiless sun, four days without water and without food, since they could neither swallow or digest the food tablets without the aid of water . . . Hunger was not the worst . . . it was the thirst! And the natives had camped them beside a shallow gurgling brook . . .

Somehow the five fell asleep, but morning was worse. Above all they must not let Rafel and his crew know the truth. They must keep upon their feet steadily, not dare to stumble. There was no singing in the line that day, and very little talk.

With the third stop of the day, during which the fox-men ate their fruit and slaked their thirst Jimson noticed a spot of blood on Ware's lip. He wondered about that, so that he began to watch the other until to his horror he saw Ware put a wrist to his mouth, and heard the sibilant sound as the man sucked upon his flesh!

Pulling Ware to his side he saw the truth. There was fresh blood on his lips. The man was sucking his own blood. He whimpered when Jimson accused him. "I cut my wrist on a vine a way back, and it . . . well . . . it sort of quenches some of my thirst . . ." he explained.

"You fool," moaned Wendell, "you fool!" And he watched Ware for the rest of the day. It was horrible enough to think of a man doing such a thing, but Jimson feared also that the open cut would be his end, the poison from the plant that had made the cut . . . would it prove deadly?

In the next few hours he forgot Ware's predicament in his own. Water, water. God, would this never end? Like an automaton he found himself pushing one foot forward . . . then the other. The heat, the odors of stinking jungle. Swarms of insects rising in clouds in a man's face at each step. The rank odor exuded by the large fleshy leaves of the ground creepers. Webes drilling on all sides. Brightly-plumaged birds darting from their coming; paining the eyes with the slash of their color.

Food! Fruit on every side, hanging in clusters within reach; fat, juicy, peach-like gobulars, scarlet cherries, purple plums. Luscious and poisonous. Tempting a man to stop, pluck and eat; to quench the thirst in their juice and let consequences be damned!

But one remembers Wendell's white hair, Warren and Yarbow. A monstrous planet this. Wrapped in beauty, festering in poison. And the water. God!

NOW John Arth stumbles ahead. He's reeling, unable to stand the gaff. Ah, well, what's the odds . . . what if Rafel knows they aren't Gods? They'll die soon enough, they'll die on their feet of starvation . . . thirst . . . with food and water in full sight and reach of the hand. Must try to get Beale on the wireless tonight. Last chance . . . then . . . then to give up, welter in the poisonous water, sate one's self with lush fruit. Metal. Riches. All for the sake of a white metal dragging at their shoulders, eating into the flesh, burning a deep scar on their con-

It's night again, blessed silvery night filled with luminous shapes, the ghosts of all those who have died for thirst in this life. Sneering at them, jeering . . . Pointing long fingers at the water beside which the natives have camped for the night, beckoning for them to come; partake of the liquid flood; bask in it; to live again if only for one moment of exquisite joy.

Was ever there a world with more water? Since leaving the *cosmicite* fields the party had followed the course of a river, the same that had swallowed Talbot. Sometimes they lost it, sometimes they crossed it on a worm-eaten log; darting from stone to stone. But this was a lake beside which Rafel had camped, possibly an inlet of the same river, but it seemed to stretch for miles—cool, limpid, inviting . . .

"I can't stand it anymore, I can't, I can't." That was Morgan. "Water, water," he moaned, "water, please." Jimson remembered the immortal verse, "Water, water, everywhere and not a drop to drink!" So had the Ancient Mariner felt . . . only not so bad . . . he could not have been so thirsty . . . surely . . .

"Quiet, Jack, you'll arouse the natives. That Rafel's smart. He sits close to us at night to listen to us talk, repeats words to himself. Please, boy, keep quiet." How fuzzy my tongue is. My words are thick in my ears.

"I can't. I tell you, I can't stand it any more. I'm dying of thirst in sight of all that water . . ."

"We all are. We're hit hard."

"How d'we know it's all poison? Maybe it was only

in that place where the *Corsair* landed . . . maybe just one little pool . . ."

"No . . . no, it's the whole planet, the radium . . . too high in solution . . . and there were Warren and Yarbow, Jack." He sighed. "Please, please, have patience. Rafel hurries home. We'll be back to the *Adventure* in three days . . ."

"Three days . . . three days!" The last was a shriek. "We'll be dead by then . . . all. I'm dying now. Ah, I know!" his eyes were suddenly crafty . . . "I'll show 'em! I'll take my clothes off . . . I'll stand in the lake . . . it won't hurt . . . I'm burning up, burning up . . ."

"No, no, Jack, you daren't. It will kill you. Why even to remove your clothes exposes you to the emanations!"

"I won't drink . . . and only for a minute . . . just to stand in it?" He was begging like a child.

"It'll seep through your pores, it will burn your skin . . . it will kill you . . . the damned unnatural stuff!"

Jimson tried to hold the other back, to prevent him from flinging off his clothes, but Morgan was strong with desire, and Jimson was weak . . . weak.

He watched with heart in his mouth. Morgan was so young, just twenty-four. Perhaps after all it wouldn't hurt him. If only he'd be content with one dip, hurry back into his clothes. Ah, he was returning.

Morgan was revived. "It's marvelous," he averred. "I feel as if I'd eaten a full meal, my mouth is no longer parched. Come, all of you. See . . . I'm strong again!" He turned a neat cartwheel for their edification. Jimson knew. It was the radium. Of course he felt good for the time being . . . but what afterwards?

"No, it's suicide!" Jimson sought to hold the others back, harangue them, but they paid him no heed. Sitting on the bank he watched them disport themselves in the water, his own mouth so dry his tongue was like a piece of flannel. Every few minutes they tried to entice him to join them. He was tempted. "Why not?" he asked himself. There would be relief, instant relief. What did he care, for death was on the way regardless. Better death in the cool serenity of the lake than on that sun-beaten hell that was the way back to the ship.

They were far out in the lake, several hundred yards distant when with a wild call they turned in unison to swim back to shore. Unconsciously Jimson's weary eyes numbered them . . . one, two, three . . . one, two three . . . and there should have been four! He jumped to his feet, scanned the lake on all sides, but with the exception of those three bobbing figures racing toward him the lake was empty!

Arth wasn't out of the water before he began to yell. "Ware . . . went down . . ." Then they were on shore dripping water at his feet. "He went down like a stone . . . suddenly," they told him. "We dived for him, but he was dead already!" They were shivering even though the night was warm.

What was the use of saying "I told you so!" Death was riding their shoulders already. Nor did he tell them about the cut on Ware's wrist that was possibly the real reason for his early death . . . that and the polluted water. Tomorrow . . . if they lived . . . they might be tempted to ape Ware.

Then Jimson saw Rafel, a luminous figure standing beside a tree watching them. Did he guess? Did he know? Had he understood their words, their want? Did he see that one of their number was missing again? Could he know how they suffered? Well, what of it . . . they were men, starving, thirsty men.

CHAPTER V

Water!

WITHOUT a word Arth, Morgan and Petrie donned their clothing again. They dropped Ware's garments and his load of nuggets in the water. They lay on the ground close together as if seeking safety in their numbers. Jimson turned to the radio again. It was useless. He grew drowsy, his head nodded. He dreamed he too swam crystal-clear water where there was no shore, where he kept on swimming, swimming . . .

With the arrival of morning he found the three still alive, unharmed it appeared. They were ready for the march, their eyes bright, their bodies filled with new vigor; their fear of the previous night was gone. On the march they gave surreptitious help to Jimson over the roughest part of the trail as the natives cut through the heavy growth that seemed to spring anew with their passing.

The day was a repetition of the past one, the nerve-trying sounds of the jungle, the myriad insects, the awful heat of the sun beating down upon heavy helmets, the bands of their knapsacks biting into their shoulders. Later Jimson was to wonder how he had ever managed to cling to the *cosmicite* as he did. Only force of will kept him on his feet—the will to live, to enjoy the fortune upon his back.

Then came the mid-morning halt. He noticed that Arth was groggy. He had dropped to the ground with a heavy thud; lay where he had fallen, eyes closed, mouth strangely grim. Morgan and Petrie was almost as bad. Arth groaned, but the others set their teeth against the animal expression of the body.

When the signal came to start, Arth could not get up. He moaned, but was unable to speak. He lay there staring up into Jimson's face, his eyes big and glassy like the eyes of a dog Jimson had seen die once. He would recall Arth's face many days to come. Morgan and Petrie just stared at them, gritting their teeth so hard their jaws made clicking sounds. Jimson tried to bring Arth to his feet. He was a sack of meal, boneless in his grasp. He had to let him fall back to the ground.

"He drank some of it," Petrie said through stiff jaws, meaning the water of the lake.

Rafel and his men stood by watching, curious. They saw the glazed condition of Arth's eyes; they knew death. They glowered at the white men. Then Rafel spoke. "He die . . . like men!"

Jimson hesitated, then shook his head. "He die like man because he sin," he said in the jargon they used to make themselves understood by the fox-men. "God eat only food and drink water of God!" He tapped his knapsack significantly. "If God eat, drink, food meant for man he die . . . for then . . . there not be plenty for man!" He could hardly force the words from his swollen lips, but he thought his answer was masterful. Let the beggars get around that!

"The one who die in water . . . he sin, too?" asked

Rafel. Then thoughtfully. "There plenty for God and man!" and waved an eloquent hand to take in the fruit-bearing trees, the glimmer of the river a hundred yards to the right. Jimson's eyes following his hand bulged at the sight; he forgot for the moment what he was about as he too considered the plenitude of water in this wild land. He caught himself, hurried to cover his pause.

He shrugged his shoulders. "Great Leader say different. He say it taboo . . ."

Rafel, whose land suffered with too many taboos, could appreciate that, but by listening to the men during their long days of companionship he had learned a smattering of their tongue. Now he said: "You eat all food . . ." here he tapped Jimson's knapsack . . . "your water—gone. You die for water . . . and Gods no die! So it is told!"

Jimson wanted to cry out, to tell him the truth, to find sympathy in the beady eyes before him, but he dared not. Rafel was a mighty man among his kind, he would not endure being made a fool of! He would lose face with his people were it known the white men had but made a pawn of him.

"We Gods!" Jimson was belligerent now. "You know we Gods . . . or you die!" He tapped his pistol. It was the last chance, for Rafel had seen what the pistol could do. He would at least believe in that.

The fox-man nodded. "We believe," and he ordered his men to bury the now dead Arth, for Arth had died as they argued. The natives whispered among themselves at the decay already setting in upon the body. It rotted before their eyes. They had never seen the like. This if nothing else convinced them that these men were indeed different than they. The march continued.

Now it was Jimson who seemed strong in comparison to the others . . . Morgan and Petrie who were weak. They stumbled at every unevenness of the road. At last Rafel came to Jimson's side. "They die . . . too!" he muttered. Jimson nodded, not daring to speak.

"You men . . . no Gods!" The chieftain spoke with real conviction now. "Gods no die. You men like us. You come from another place.* I listen, I know. Other place!" he said accusingly.

Jimson lost his head. "Sure . . . we're men. It's this damned poisonous world . . . it's . . ." he realized what he had been saying . . . but he was speaking English . . . perhaps Rafel could not understand after all.

"Men like us . . . you . . . you . . ." but the fox-man could not find words to express his black thoughts. He knew but one thing He and his people had been betrayed. He called to his fellows, halting their march, and broke into a flood of liquid tones that Jimson could not follow. Their faces were somber.

SUDDENLY Morgan pitched to the ground, felled like a tree. Petrie was easing himself after him, unable to sustain his own weight longer. He had dropped his pack somewhere behind. Rafel gave them no heed. He was screaming at Jimson. "You make lie. You spoil magic . . . the *dasie* cries for revenge . . ." He was working himself into a black rage. Jimson found it in himself to sneer.

"Well?" he wanted to know. "What does it matter?"

*It is to be questioned if Rafel truly understood that they had come from another world. The Tolls' word for world is place, as is any other part of their planet which is foreign to them.

"Men from other place. You make sky-boat swim ocean between places. You want *dasie* . . . you act like Gods to fool us. But you no return. You no tell others. My people . . . they make you die!" A bow and arrow appeared in his hands as if by miracle from its holder at his back. His companions were armed likewise, an evil circle of *cosmicite*-tipped arrowheads pointed at Jimson's heart.

He dared not draw forth his revolver and he was afraid. He who had faced death for three days was afraid of it in this form. "Wait," he shrieked. "Rafel wait! Talbot . . . him God; Wendell and Beale who wait in big boat of the sun . . . them Gods. We . . . others . . . we not Gods . . . we Men-Gods . . . men who serve Gods. You understand? Someone must serve Gods . . . like *muli* serve men. You understand?"

Rafel hesitated. Jimson could see in his eyes that the poor fellow wanted to believe if only he dared. He needed to save his face. He was wavering now. "You lie one time, maybe you lie again . . . the *dasie* wants revenge!"

"No, no, the *dasie* is unharmed. It's they who die . . ." he pointed to Morgan and Petrie. "The taboo . . . they broke it. I not die because I not sin. Wendell, Beale true Gods . . . they not die. I swear it, I swear it!" There was panic in Jimson's voice. His throat creaked with every word.

After a minute long pause Rafel nodded, lowered his bow. "We wait . . . Beale, Wendell must show them true Gods!"

Weak with relief Jimson wanted to cry, but he was a dried-out husk. He turned sadly to his companions. Morgan was breathing with difficulty. Petrie had placed himself flat on his back. Jimson leaned over Morgan. He picked up one arm to feel his pulse. It bent weirdly in the middle of the forearm. Petrie saw it. "It's in the bones . . . its eats . . . away . . . the lime . . ." he explained. Morgan's eyes had glazed; they stared at the brilliant swollen sun directly without seeing Petrie was going too. A few minutes and he could not raise his chest to breathe or moan.

Rafel's men refused to help Jimson bury his dead, and he was too weak to scratch out even the shallowest grave. He wanted to say a prayer, but his cracked lips refused utterance. He had to leave the pair where they had fallen, boneless things, decaying already. Soon they'd be devilish masses of putrefaction shunned by the meanest scavenger of the jungle.

The natives paid him no heed as he stumbled on after them. The machetes flashed in the sun. Rafel no longer waited for him to pass on ahead.

On; on, push on! Swing the damn machetes. On, on, one step, now two, a third and another. What if these weighted feet refused to obey? The *cosmicite* on his back . . . it was dragging him down . . . Lord . . . he didn't have the strength to pull his arms out of the straps. If there were only some water, a drop, a thimbleful. What is that? A slow-moving river. Water! *Water!* WATER!

How thick the grass has grown, vines pull at arms and legs . . . why . . . the machete wielders have gone . . . gone. here . . . oh God . . . was he? Ah, yes . . . the water . . . water . . . there ahead!

Funny noise! Crack . . . crack! Webes didn't make

a sound like that. Yet familiar . . . strangely familiar. Jimson! Jimson! Why all the jungle was calling his name. Jimson! What a joke. Why there they are. Talbot, Ware, Arth, Morgan, Petrie . . . coming to meet him. Good fellows . . . they wouldn't leave a pal behind. Not them. And they'd go swimming together . . . all of them this time . . .

Funny . . . lying here . . . hurry . . . hurry can't you see the water ahead . . . not ten feet away. Why only animals crawl . . . what's wrong? What's the weight on one's back . . . something lying heavily on one's back, holding one down . . . oh yes . . . one's old man of the mountain . . . the *cosmicite* . . . the fortune with which to buy a space ship of one's own. The sun . . . it's gone . . . the world is black . . . this then . . . is death . . . death. Silly to have feared it. It's cool . . . clean.

Water, water! Oceans of it running over his mouth. Feeble fingers reach to catch escaping drops . . . the flood withdrawn. More, more, I say! More!

"Easy, easy, Bill!" Funny Beale's voice here. "Take it easy like a good fellow. There, a little more now. You're all right, old man!" Beale . . . good ole Beale . . . don't know he's too late . . . don't know that I'm dead!

"I'm dead . . . a dead man . . . only a man . . not a God!" Jimson could hear that strange voice at his ear. It took several moments to recognize those hollow tones for his own.

"You're not dead, though you were darned near it. The others, Bill, what happened?"

"They weren't Gods . . . they sinned . . . they bathed in the lake . . . their bones . . . dissolved like . . . water."

"My God! Wendell warned you!"

"I told 'em you were God . . . not us . . ."

"Yes, I know. The fellow Rafel took a pot-shot at me. Lucky I wore my lead mess shirt. The soft tip of the *cosmicite* blunted . . . and the arrow fell to the ground. They are certain now that I am a God. But what a price to pay. Five men gone in one blow . . . and all of the *Corsair's* crew but Wendell . . . you almost . . ."

"I've got the stuff, Captain. Look . . . sixty pounds of it, and pure . . . pure . . ."

"Yes, Bill, you're a wealthy man now. You can buy an estate and marry a wife and play at life, but you won't, you poor fool, you won't. You'll go on and on . . . looking for new fortunes, peeping into all the strange corners of the universe . . . and if you're lucky you'll see many new things and make many fortunes, but one of these days in some strange jungle like this it'll get you . . . and you'll die like the rest of us . . . with . . . with boots on . . . Wealth, fortune, Lady Luck! It'll get you.

"And the others, men who will come after us to Vulcan. These poor untutored savages will fight to preserve their rights. Thousands will die before they learn their lesson; the rest will become slaves to dig out the ore. Our own men . . . poor devils . . . they'll sweat and toil in this noisome jungle, under the blistering sun, living on food lozenges . . . on water so filtered that it is dead. Craving baths in the cool inviting lakes, tempted by the growing fruits on the vines. Some will succumb . . .and their bones . . . will rot!

"Riches! Man's damnable desire to conquer, to nose in where he don't belong. In the future men will point to you and me. They will say . . . 'those pioneers . . . they were men!' Bah! Sheep! That's what we are . . . pigs for the slaughter . . . pigs for slaughter!" A wild laugh broke upon the jungle.

THE END

RADIUM == Boon or Menace?

By HUGO GERNSBACK

NO elemental substance has so intrigued the minds of men since its discovery, at least since the Iron Age began, as radium, the mystery metal. It has been hailed as the key to all the unknown things in science, as the liberator of power undreamed of, as the panacea which would cure all diseases and make men immortal. Now we are told that it is a source of terrible, creeping, treacherous death, and that laws must be passed against its use.

Is radium to be a blessing or a curse to the human race? This will be only one of the many important scientific problems discussed and explained in the big June issue of

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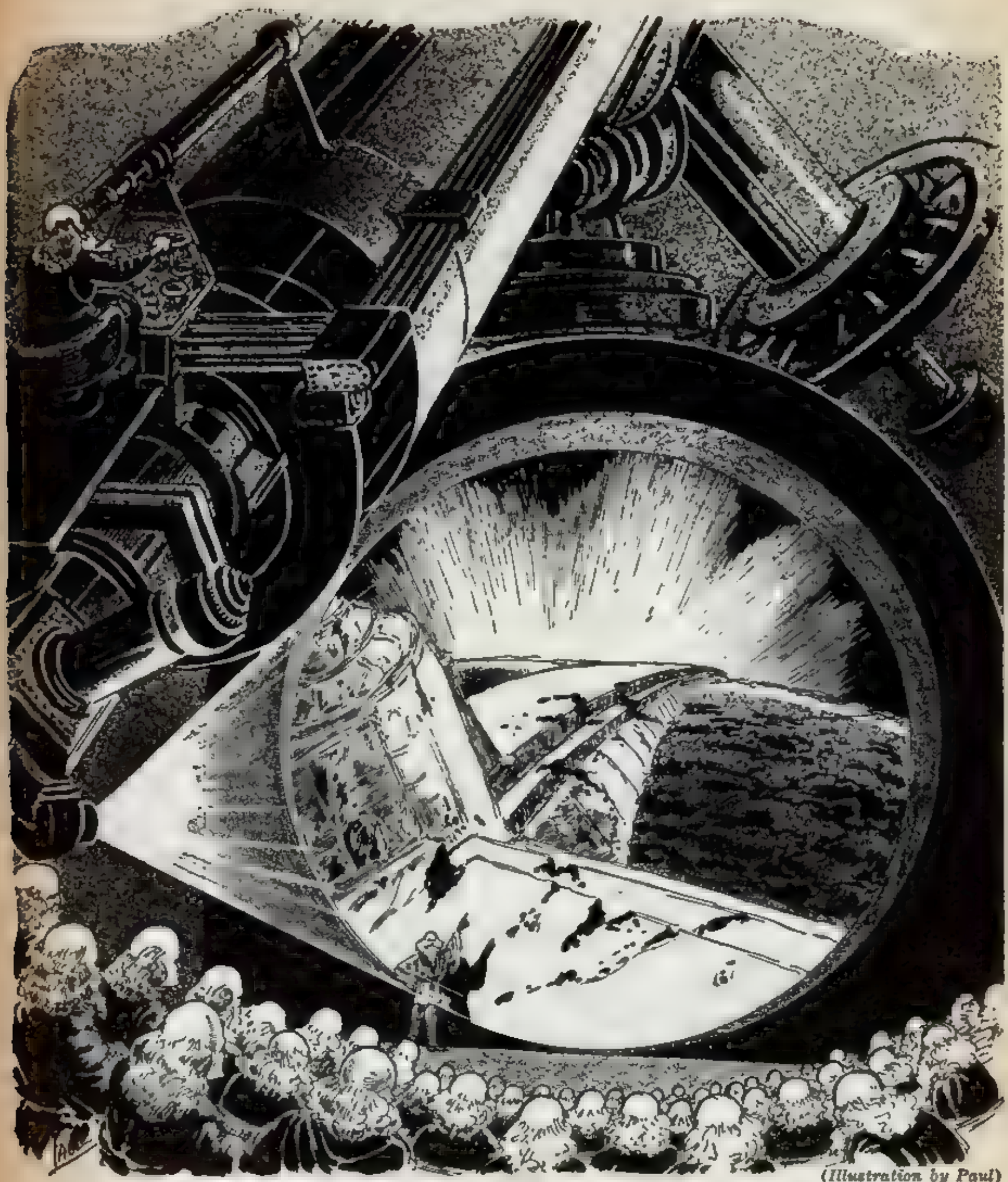
THE MESSAGE FROM MARS

By **Ralph Stranger**



(Illustration by Paul)

"Mercury presents a pathetic sight. Its race is dead, and what they call a sun-cracked surface is nothing but the ruins of gigantic structures similar to those on Mars."

THE MESSAGE FROM MARS

I HAVE found a job at last! I, William Edward Cooper, M.C., B.Sc., A.M.I.E.E., late Major R.E. Signals have found my first permanent post!

I suppose you cannot see anything strange in this, but then you don't know me yet . . . Oh! I don't mean that I have never been employed. I held some responsible positions, but I could never stick to a job for long.

My wife, the little flatterer, is under the impression that I am too brilliant a man for routine work.

I know that this is all rot . . . The whole truth of the matter is that I am very seldom satisfied with what I am doing. If I am designing electrical machinery I must dabble in radio. Then I strike something that looks promising . . . In goes my resignation and I am carrying on on my own till my patents are through.

Once the excitement is over I am looking again for something to do.

It is rather fortunate for my wife and my son that we are not dependent on my earnings. I have a pretty large private fortune left to me by my father, and I suppose this will account to some extent for my restlessness.

Still it is all over now. I am permanently fixed as a liaison officer between Earth and Mars, and as to my job being exciting, well, we shall see.

I think I had better begin from the beginning.

A few months ago, one Thursday evening, about 10 pip emma, I left the hospitable portals of my club, and having decided that a stroll would do me good, I crossed the road to the railings of the Green Park, and set out on foot towards my house in Kensington.

Suddenly I heard a shout and a scream, and then some more shouting. I glanced over my shoulder and stood stock still. A dark bundle was lying in the middle of the road and a number of figures were moving towards it at a trot. The rear lights of a motor car were rapidly disappearing in the distance.

I joined the group. The dark bundle proved to be an old man, grey-headed and rather small in stature. It appeared that the car had knocked him down and gone right over him. The injured man was breathing rather heavily, and I saw at once that there was no time to lose if he were to live. No one seemed inclined to do anything so I hailed a passing taxi and within a few minutes the injured man was in the capable hands of the doctors and nurses at St. George's Hospital, Hyde Park Corner.

While I was giving particulars of the accident to the nurse on duty, a man came running down the stairs and told me that I was wanted by the doctor in charge.

I followed, and after mounting some stairs and passing down a few long corridors, found myself in a large room with rows of beds. The doctor introduced himself, and told me that the patient would not quiet down till he saw me. "His condition is very serious," said the doctor, "he might live for two or three days at most, and I think he has something on his mind that is worrying him . . . See if you can help him in any way."

The old man and myself were left alone.

After a while he gathered enough strength to speak, and motioned me to come closer.

"Listen," said he, "you rendered me a service, and it leads me to believe that you will do something else for me. Are you afraid of danger?" Is a duck afraid of swimming? I became quite interested. The old gentleman apparently read my thoughts, and went on talking: "I am Professor Ostrohoomov" . . . I started . . . Professor Ostrohoomov, the man who established communication with Mars! "Ah, I see by your face that you have heard of me . . . Good, now listen . . . this was no accident . . . they ran me over to kill . . . they are after my secret . . . the fools! Borara will avenge me, he will know . . . But my wife is in danger . . . Go to 106, The Crescent, Hampstead, and take my wife out of the way of these ruffians . . . See that she is safe . . . Give me your word of honor that you will carry out my request."

"I will, sir, you can rely on me implicitly," was my answer.

"Thanks, thanks, may God bless you for being so good to a dying man. Hurry now, there is no time to lose."

Mrs. Ostrohoomov proved to be a timid old lady dressed in an old-fashioned Russian dress. As soon as I told her

RALPH STRANGER

MR. STRANGER is an English authority on radio, and from his wide knowledge of the possibilities of interplanetary communication, he gives us this exciting tale of two worlds. Our readers have been crying aloud for stories in which creatures from other worlds do not figure as invading, bloodthirsty demons. Here, then, is a story they have been waiting for. Our Martians are presented in a new light, and they come upon the scene to interfere in an earth catastrophe of the first magnitude.

Mr. Stranger has kept his science as well as history plausible; and although you may not agree with him as to the method of interplanetary communication used, nor with the character of the catastrophe, we must remember that like most Americans Mr. Stranger is imbued with patriotism, and we see that Englishmen can occasionally save the earth too!

that I came from her husband, she promptly asked me if I would like some tea, and was already bustling out of the room when I told her that my taxi was waiting and would she dress for the street and come with me, as it was her husband's wish.

"But where does Michael wish me to go, why does he not return home at this late hour, he will catch his death of cold being out so late." I hated my job, but I had to do it, and I gently broke the news, telling her that it was only a slight injury.

The poor old soul completely broke down. After a while, however, she pulled herself together and insisted that we should go straight to the hospital. In a few minutes she was ready and, having locked up the house, she followed me into the street. The taxi driver was eager to start and as soon as we took our places the taxi slipped forward and went at a good speed along the deserted streets.

On our way to Kensington we called at the hospital, and learned that the professor was quite comfortable but that it was out of the question to see him, he should not be disturbed. It was one o'clock in the morning by the time we arrived at Kensington and I found that my wife was sitting up for me. I explained to her briefly my evening's adventures, and she, grasping the situation, promptly took charge of the unfortunate professor's wife.

NEXT morning Mrs. Ostrohoomov, my wife and I called at the hospital and we left the old lady there with her husband, promising to call for her in two hours' time. The nurse told us that the professor felt much better, but there was very little hope of his recovery. Three days after the accident the professor was dead.

The inquest, at which I had to give evidence, resulted in the verdict: "Death due to internal hemorrhage, caused by collision with a motor car. The collision was purposely carried out by some person or persons unknown, who are guilty of conspiracy and premeditated, cold-blooded murder." The Coroner commended my conduct and dismissed the jury.

While in the hospital, the professor had made a will in my favor, the only condition being that I should be responsible for the maintenance of his wife while she lived.

Thus Mrs. Ostrohoomov became a member of our household and a devoted worshipper of my three year old son, Peter.

Very shortly the professor's lawyers got in touch with me and asked me if I would accompany them to Hampstead to take over the property and effects of the late professor.

We went to Hampstead the next day. The house looked quiet and forbidding. We opened the front door and walked in. The sitting room was just as we left it, but in the professor's study we had a shock for there we found a man sitting in an armchair by the fire-place. Behind him stood a large reflector, mounted on a tripod, with wires running to some mysterious looking apparatus, not unlike a radio set, which on inspection proved to be completely burnt out.

The man did not take the slightest notice of our entry and continued gazing at the cold grate. "Who are you and what are you doing in here?" asked the lawyer in a sharp staccato voice. There was no reply . . . I went to the chair and touched the man on the shoulder; he sagged sideways, he was stone dead.

The Professor's words: ". . . They ran me over to kill . . . they are after my secret . . . the fools! . . . Borara will avenge me, he will know . . ." flashed through my mind and I felt a cold shiver down my back. The dead man was one of the murderers and apparently possessor of the professor's secret! All the secrets were open to him now, poor devil! . . . One of us went to ring up Scotland Yard. In half an hour the affair was in the hands of the police who, after taking a number of photographs, removed the body and left me in possession of my property, with a policeman for company. Having collected all the documents and notes of the late professor I took them away with me, leaving all the apparatus undisturbed, for I felt that the professor's Martian friend was perfectly capable of looking after this part of the show, as there was not the slightest doubt that somehow he had managed to kill the intruder.

Borara! I had read of him, this mysterious Martian scientist with whom Professor Ostrohoomov was in constant communication.

Many of the professor's notes were written in Russian and it took Mrs. Ostrohoomov the best part of a month to translate them. The translation is all complete now and I have read every bit of it. What a far-fetched story! How impossible, how absurd! . . . So I thought at the time, but I am a wiser man now . . . The professor's notes read like a fairy tale, but they were true nevertheless.

Before his death the professor wrote me a letter.

"Dear Mr. Cooper,

"I believe that Providence sent you to me in my hour of great need. You are just the man to carry on my work and to continue my researches into interplanetary communication, which I have to leave so abruptly. I have instructed my solicitors to find out all about you and to ascertain if you are to be trusted.

"I have their report in front of me. It was quick work, but then you are apparently well-known. Forgive me these inquiries, but I must be very careful as I am placing at your disposal a great power, so great that the future of this planet of ours is in the hollow of your hand. You will realize this for yourself when you have completed reading my notes which shall be handed to you.

"When you take over my apparatus and get in touch with my Martian friend Borara, do not forget, if you value your life, to start the conversation first by thinking in English the following sentence: '*Horodons grow on the shores of the Balvian sea.*' This is your password to Mars. This may seem to you childish at the moment, but later you will realize what you are up against, and how careful one has to be with a responsibility that was mine. Tell Borara what happened to me and read out this letter. He knows English.

"And now a word of advice. You will learn from my notes and from Borara a good deal about the Martian civilization. Humanity is not quite ready yet to receive such advanced knowledge; they would use it to destroy one another, and therefore you shall not disclose any information whatsoever without Borara's permission. His word is final, whatever you may consider to be your duty at the moment. But here is your consolation: *Should your country be in great danger the Martians will help you to save your country. They are in a position to help.*

"God bless you, my boy, and help you to carry lightly this great responsibility. Thousands of dangers surround you, there are desperate men who would not hesitate to kill you in cold blood, if they thought that your death would lead them towards Martian knowledge.

"Do not leave lying about any written information of importance. Keep it in your head, as I did. When you are in need, all the wonderful Martian science is yours for the asking.

"Good-bye, we shall meet sometime in a better world.

Yours sincerely,

Ostrohoomov."

When I finished reading this remarkable letter, I felt a lump in my throat. This child-like faith of a dying man in a perfect stranger was pathetic, and I fervently prayed that I should prove worthy of such a great trust. Professor Michael Nikholaevitch Ostrohoomov, late Professor Emeritus of the University of St. Petersburg (Physico-mathematical Faculty), to give him his full title, arrived in England as a refugee from the Russian revolution in 1917. His main subject was astronomy and together with other scientists he devoted a good deal of his time to studies of the planet Mars.

He firmly believed this planet to be inhabited by some intelligent beings who were trying to get into communication with Earth.

He made many efforts to communicate with Mars, but having failed time after time, he finally gave up the idea, till Mars got into communication with him.

The whole thing was a pure accident. The professor happened to be sitting one night when Mars was at its shortest distance from earth, in front of his electric reading lamp, which had a highly polished reflector. His back was turned towards the lamp so that light fell over his shoulder on the book he was reading.

He suddenly felt that his brain was gripped by a succession of surges, and he became quite alarmed, thinking that something was wrong with him. But the sensation was so persistent and of so methodical a character that he realised that the disturbance originated at some external source. He made his wife take his place and found that she experienced an identical sensation. For a scientifically-trained man this was sufficient to carry out in a systematic way a number of experiments. The professor soon realised that the disturbing center was to be found in the focus of the reflector.

NEXT morning he went to the city and purchased two large reflectors from a well-known firm of scientific instrument makers.

The professor's theory was that some electromagnetic waves were focussed by the reflector, just as light waves are reflected and focussed and in some manner or other produce an impression on the human brain.

The same evening he proved his theory. As soon as he placed his head in the focus of the reflector, the waves made themselves felt again. The only peculiar thing about them was that while he sat with his back to the reflector he could feel them, but as soon as he turned round they disappeared.

After making sure of this phenomenon, he decided that one particular cell of the brain, situated at the back of the head, was acting as a receiver of these waves.

After a while he found that the waves were getting stronger and stronger, and suddenly the room disappeared from his field of vision, and a strange picture took its place. He saw the planet Mars (he recognized its markings at once) floating in a silvery mist. This was replaced by a picture of our own planet which was also easily recognizable by its familiar continents and oceans. The third picture was that of Mars and Earth with beams of light pulsating from one planet to another.

It became perfectly clear to the professor that whoever was transmitting these pictures was trying to indicate that they came from Mars.

How they were transmitted the professor was at a loss to understand, but transmitted they were, and the only term he could apply to the method of transmission was—telepathy.

Having settled this point to his satisfaction, he reasoned that if he were the possessor of a brain cell strong enough to act as a receiver, why should there not be another cell which could act as a transmitter. In order to test this out he concentrated on the thought of his own house, but nothing unusual happened.

A sudden idea then struck him and turning his head round he thought of the same thing again. Nothing happened . . . He turned his back to the reflector and nearly went mad with joy . . . He saw his house floating in the silvery mist. There was not the slightest doubt that his message had reached somebody on Mars and was transmitted back to him again.

He had established communication with Mars! To make absolutely sure of the thing, he turned round to face the reflector and thought of his own appearance.

As soon as the back of his head was facing the reflector he saw himself floating in space.

He was now perfectly certain that a human being possessed two or more cells, of which one group was situated at the back of the brain and could act as a receiver, while the other group was to be found at the front, and could act as a transmitter of thoughts.

The professor then became passive and waited for further messages. And sure enough they came in rapid succession. Mars, Earth, the two planets together with beams of light pulsating between them, the professor's face and finally that of the Martian correspondent.

According to the professor it was a most striking sight. Imagine a majestic-looking old gentleman with a very long face. A high domed forehead seemed to be predominant, two large wide-spaced penetrating eyes with remarkably long eyelashes, a long prominent nose very wide at the nostrils, long moustache and beard, and long flowing locks hiding the ears. There was no vestige of color in that face, although otherwise color was present in the pictures, and it was deeply lined with furrows of a very great age. One could see at a glance that it was not a human face, but there was nothing repellent about it, it seemed so very wise and so benignant.

In the background the professor saw some mysterious-looking, complicated apparatus which he completely failed to recognize. In order to make reception and transmission less laborious, the professor placed the two reflectors at right angles in such a way that he could receive messages by means of one and transmit with help of the other just by turning his head ninety degrees.

At first, communication was carried on by means of pictures, but later Professor Ostrohoomov had the happy

inspiration of thinking of sounds. This proved to be a complete success and after a few sittings the messages started to assume quite an intelligible character. Thus the professor learned that the name of his Martian friend was Borara.

Borara proved to be quite an intelligent pupil of languages, possessing a memory of such phenomenal power that it took him only half an hour to learn the Russian alphabet and at the end of ten days he had a complete mastery of the language. The professor sent him at first letter after letter, thinking simultaneously of its contour and the sound value. The spelling proved to be very simple, as Russian is a phonetic language, and once this was mastered all the professor had to do was to open a book on any subject and just read it to himself, picturing the contents. There was some difficulty with abstract words, but a picture was found in every case, although sometimes the process proved to be rather lengthy, requiring a whole series of pictures.

Borara could repeat page after page without making a single mistake, and when the puzzled professor inquired how he could remember so much in such a short time, Borara replied that he was recording the professor's thoughts by means of photo-electric apparatus and that the first edition of the professor's treatise on nebulæ was published and distributed on Mars within three hours from the completion of its transmission from Earth.

When the professor was reading to him a book called "Wonders of Modern Science," Borara asked him why he picked up a historical treatise. When the professor explained that most of it was ultra-modern, Borara seemed to be highly amused and remarked that they had finished with steam about 5,000 years ago, and that the last electrical turbo-alternator built on Mars had been in their museum for the past four thousand years. The latest effort in radio also failed to impress the Martian gentleman, who, apparently after turning up some records, declared that the Martians knew all about it 3,600 years ago.

Borara was also vastly amused at our scepticism about life on other planets. According to the professor he said: "You must be a very conceited race to think that your particular speck of dust should have been selected for the creation of life. The laws of creation are the same throughout the universe; life is everywhere and you will learn this great truth immediately after what you call 'death.'"

CHAPTER II

An Astounding Offer

PROFESSOR OSTROHOOMOV'S notes are very copious, but unfortunately they are very rambling and in many instances seem to be unreliable. We must not forget that at first the professor was working under the influence of the great excitement produced by his discovery; later he had to spend a good deal of time in teaching Borara Russian, and then English, because when Borara learned from the professor that the British Empire was the mightiest Empire on earth and English the most widely-distributed language, he insisted on recording it immediately as well as a great number of books on all possible subjects.

Later the professor, having published the news of his discovery, seems to have disturbed a hornet's nest, for he began to be pestered by all sorts of people, most of them foreign spies. It became quite dangerous for him to leave his notes about. His house had been entered many times and searched from cellar to attic, but fortunately when the professor realized the danger of his notes falling into the hands of unscrupulous people, he adopted a very ingenious method of concealment, which completely baffled the spies. Those who have heard of "bottled wireless" will know what I mean. The professor did not write down his notes on paper but spoke them into a microphone connected electrically to a magnetizing system so that the speech was magnetically recorded on a strip of steel wire, and could be reproduced later at will with the help of special apparatus.

This was deposited from time to time at a safe deposit, while his ordinary notes, mostly concerning life on Mars, its flora and fauna, some simple scientific appliances, in short everything that could not be of menace to humanity, were kept in his desk. I, naturally, went through his magnetic records, but the matter is of such importance that I am not at liberty to disclose it publicly.

I could not forget the murder of the professor and felt that it was my duty to track the murderers, since the police had completely failed to discover the malefactors. The dead man found in the professor's house proved to be a complete mystery. His identity could not be established and the doctors were entirely at a loss as to the cause of death. The post-mortem proved nothing.

I fully realized that whoever the people were who murdered the professor they were in real earnest, and that I might just as well make up my mind to look forward to some excitement. Not that it bothered me much. I know my potentialities when I am in a tight corner, and I might prove a very ugly customer to tackle, but then, when anyone does not know exactly what he is up against, he does not feel altogether comfortable.

I decided therefore not to sell the professor's house, but use it as my laboratory and wire it up electrically in such a way that anyone entering the house without my knowledge would have a warm reception.

I also remembered an old pal of mine who at the moment to the best of my knowledge and belief was at a loose end, so much that after his last letter, in which by the way he did not ask for a loan, I had to arrange with my solicitors for the death of a fictitious French person whose life my pal presumably saved, and who had now left him £5,000 in his will. Thus Bill Sanders became a gentleman of independent means.

A telegram brought him to my side within two hours and I embarked upon my Martian adventures in the company of Bill. Next day, after Bill's arrival, I had the doubtful pleasure of entertaining at my private residence an unexpected caller. To give him his full title: Mr. Edgar Mathias Colon—financier.

He looked more like a moneylender than anything else, but still he introduced himself as a financier and company promoter. When I saw the genial Mr. Colon comfortably installed in an armchair with a fat cigar in his mouth, band and all, I sent a few uncomplimentary remarks telepathetically to my butler who had not had sense enough to send the fellow about his business. Mr. Colon no doubt had his own methods of dealing with reluctant butlers.

My visitor did not mince matters. "Look here, Mr. Cooper, I am representing one of the most powerful finan-

cial groups in the world. We have heard about your remarkable legacy and I am here to make you a very attractive offer. But before we go into details I want to know how you stand with us!"

I slightly raised my eyebrows. "Excuse me, Mr.—er—Colon, don't you take things a bit for granted?"

Mr. Colon looked at me with apparent admiration. He was so pleased that he slapped his rather plump knees with both hands and, having rolled his cigar into the opposite corner of his mouth, he deliberately and solemnly winked at me.

"Not so fast, not so fast, my dear sir. Ah, the impulsive youth! Hear what I have to say first, and then you can talk as much as you like. My colleagues and myself, we fully appreciate that the Martians must be a very advanced crowd—their knowledge, their machinery, their weapons of destruction must be colossal! There is money in it, millions and millions of money which are ours for the asking. Don't you see that you can become a multimillionaire in one day? The old professor was not a business man. Instead of offering his discovery to a powerful combine like ours he went, and, in his professorial tom-fool way, published the news for everybody to see. Giving away his great discovery for nothing!" Here Mr. Colon's voice rose to a hysterical pitch. It was quite certain that whatever weaknesses Mr. Colon had, giving things away for nothing was not one of them.

"And did he profit by it?" inquired the disgusted Mr. Colon, "he did not; he goes and gets run over by an omnibus or something and leaves his wife penniless. Why, even the papers mentioned that it was foolish of him. Now, you are a younger man, and no doubt you are an ambitious man, Mr. Cooper; do you realize what you have in your hands? Why, you have real, solid, cast iron power, you have knowledge which nobody else on this earth possesses.

"And I will tell you what I did as soon as I heard that you had become the professor's heir. I approached a few of my intimate friends in the city, and when I put the whole thing before them they promptly realized that we are in on a good thing. Ah, they know their Colon, they know that I can see through a brick wall, that I have foresight and imagination unequalled by any other man in London. And we decided to form a new company. The Martian Science Exploitation Limited. Within 24 hours we can subscribe 50 millions capital. We are ready to patent immediately everything that is worth patenting, we are ready to build factories and lay down plants for the manufacture of new machinery and new apparatus the particulars of which are already obtained or can be obtained from Mars."

I opened my mouth in order to interrupt the flow of Mr. Colon's eloquence, but he would not let me: "We will appoint you Chairman of our Company, and you shall be a life Director. We are prepared to pay to your account at any bank you may name a sum of 10 million pounds sterling as the purchase price of your existing apparatus and goodwill. And what is more we shall pay you a salary of £1,000,000 per annum on a 10-year's contract. You are a rich man, Mr. Cooper, you are the richest man in the world, it is all yours, if only you say 'yes.'"

Mr. Colon became rather excited toward the end of his long tirade and his little beady eyes searched my face intently.

"I am sorry, Mr. Colon," I said, rising from my chair, "but I am unable to accept your kind offer. My inheritance is not for sale."

For a moment I thought that Mr. Colon would have an apoplectic fit. His face reddened rather alarmingly, and he was apparently fighting for his breath.

"You refuse, you refuse ten million pounds in cash and a salary of one million per annum!" He was gurgling rather helplessly: "You refuse, you refuse."

Poor Mr. Colon, he collapsed like a sack of potatoes on one side of the armchair.

He apparently could not understand how anyone could refuse millions. Mr. Colon was completely at sea.

His state of health alarmed me considerably and I rang the bell for a glass of brandy. But Mr. Colon would have no brandy. He pulled himself together the best he could, grabbed his hat and rushed out of the room. I heard the gentle purr of his Rolls Royce, and my modest abode became quiet again.

For some time I sat in front of my fire and mused. There is not the slightest doubt that Mr. Colon must have already made a similar offer to the professor and met with a blank refusal. That is why he was so anxiously watching my face, while he unrolled before my unappreciative eyes the picture of untold wealth. I wondered if, having failed to buy the professor's discovery, the syndicate did not try other means, such as burglary for instance, or even murder . . .

If so, then Mr. Colon is a valuable clue! Has he any connection with the murder? To make sure I rang up a private detective and gave him instructions to find all about Mr. Colon, the financier, and to shadow him till I countermanded the order.

THREE months passed before I completed the construction of the receiving and transmitting apparatus according to the instructions of the Russian professor and his Martian friend.

Finally one night I was ready to try the great experiment. Bill Sanders treated the whole thing as a huge joke, and told me to be careful how I talked to the "old Martian geezer." Bill's language is always picturesque, to say the least of it, but it is especially so when Bill gets going on the subject of Mr. Colon.

Mr. Colon paid us another visit and Bill had the honor of interviewing him. I do not know the exact particulars of the interview, except that the financier became menacing. Bill apparently lost his temper. I saw the unfortunate Mr. Colon being removed in an ambulance and a policeman writing down something in his book at Bill's dictation. The magistrate bound over my excitable friend in £100 to keep the peace for 12 months. It was cheap at the price, as Mr. Colon & Co. left us alone for over four months, thus enabling me to complete my arrangements.

I placed my apparatus in position and sat down between two huge reflectors, surrounded by endless boxes and banks of glowing valves.

Keeping in mind Professor Ostrohoomov's warning, I opened the proceedings by concentrating on the sentence "Horodons grow on the shores of the Balvian Sea."

I do not think that more than three seconds elapsed, after I sent out the first thought, when my surroundings disappeared and I was gazing into the eyes of Borora,

whom I recognized at once from the professor's description. It was a most uncanny feeling. The Martian's face seemed to be within a yard of my own, and his penetrating eyes were searching my very soul while his brain seemed to grip mine.

Borara was apparently greatly surprised and I saw his hand moving slowly towards a lever. I remembered the fate of the unknown man whom we found in the professor's chair and fear seized me. I thought again of the "password" and repeated it several times.

"Who are you?" said Borora, his face still forbidding and tense. I started rapidly explaining my position and the death of the professor, and transmitted to Borora the professor's letter.

I must explain here that we did not actually talk, but just thought.

Finally Borara was convinced. He was very grieved to hear the news of Professor Ostrohoomov's death. He knew that something was wrong, since he had discovered the intruder in front of the professor's apparatus and killed him, but he did not know that the professor was no more.

I then told Borora of the professor's instructions, of how I carried them out, and also about the improved apparatus which took me three months to construct.

Borora approved everything and complimented me on my energy. For the first time he smiled. "It is a good thing that you have better apparatus. In the professor's time I was expending such an enormous amount of auxiliary energy to carry his messages across space, that my experiments were rapidly becoming a matter of national concern. Now, however, we can go ahead."

"Before you do that, sir," I said, "would you be good enough to cover afresh the ground already covered with the professor, as some of his notes are very doubtful and I would like to check them."

Borora laughed. "I am afraid the professor was rather excited about his discovery and then he spent most of his time in educating me in your own science, so that he could not make very elaborate notes. Very well, I shall begin from the beginning."

Borora then proceeded to give at length a highly technical dissertation upon matters of scientific interest, such as the constitution of matter and the part played by electrons in the provision of energy, revealing a knowledge far ahead of that of the inhabitants of the Earth. He criticized our scientific knowledge somewhat and went on to say:—"Although your scientists have a general idea of the laws of the universe, they seem to be unable to realize that these laws are universal and that life occurs on every planet at some time or other during its existence. They should have learned ere now that the Earth is not the only favored planet and should have tried long ago to get into touch with Mars and for that matter with Venus, which, as you will see later, is also inhabited.

"For the last 800 years, as you reckon time, we have tried every kind of signal possible to get into touch with you, but you ignored them all. We knew all the time that Earth was inhabited, as our telescopes are much more powerful than yours. As a matter of fact their magnifying power is such that given favorable conditions we can count the bridges on your River Thames and even gain a glimpse of your street life.

"We know the whole of your history for the last 400 years a good deal better, as far as I can see, than you do yourself."

Next morning as soon as we had finished breakfast, I read out to Bill, Borora's lecture of the previous night. Bill listened very attentively, but I could see that it was just only polite interest, as soon as he realized the nature of the lecture. "Good old Borora," was his only comment, "he does seem to know a h— of a lot about the stars; must have had a college education like yourself."

I must mention here that college education was a very sore point with Bill Sanders. His father died penniless and left Bill to look after a large family. Sanders had done his best for them and put everybody on their feet, but as a result, with time spent in the war, he found himself handicapped in the struggle for existence.

His sudden inheritance certainly eased his mind a good deal, my adventure supplied him with a new interest in life, and, just what he required, a hint of possible dangers.

One thing Bill could not stick in life was crooked dealings, as soon as he realized that Mr. Colon was not beyond hitting below the belt, Mr. Colon's activities became to him a source of unabating interest.

The discovery of the professor's murderers was to Sanders his mission in life. With time weighing heavily on his hands, and having made the acquaintance of my private detective, an acquaintance which developed into a close friendship, Bill decided that there was no better job than being a crime investigator.

That morning I was going to spend the day with my family at Kensington and I asked Sanders as to his plans for the day.

His reply was short and to the point: "I am after that swine!" When I asked for some further explanations, it appeared that the great financier, having recovered his health, and being abroad again, was seen in shady company somewhere in Whitechapel. A few remarks made by the members of the gang, whom Mortimer, the private detective and Bill had shadowed, hinted at some renewed activities around Hampstead way.

Bill, therefore, wanted to know something more about their plans and was going to visit a famous local health resort which went under the name of "The Spotted Cow." And to "The Spotted Cow" Bill went.

I heard the rest of the story next day. Sanders met at "The Spotted Cow" a certain "Shorty" who found in Bill an affinity.

Bill was naturally dressed the part, and having stood Shorty a drink, "confessed" to Shorty that he had been out of a job for over two years. Shorty immediately expressed a violent desire to help his newly-found friend and to introduce him to one called "the boss."

They went accordingly to Limehouse and in a low Chinese den interviewed this person of importance, who looked like a very unsuccessful cross between a Mongol and an Ethiopian. Bill's slang is perfect, and it was a child's play to him to convince the Boss that he, Bill, would be a very desirable acquisition to the gang.

A job was given to him on the spot. Bill and Shorty were to go to Hampstead, find a place called the "Crescent" and keep under observation a house numbered 106. Two men lived in that house, they were informed by the Boss, one by the name of Cooper, a "hengineer" and one Sanders "a hexorficer," the taller of the two and more powerfully built. They were to spot him when he went

out during the evening—Cooper usually remaining indoors—and find an appropriate moment to sand-bag him. They were to be supplied with chloroform and as soon as they had bagged Sanders, he was to be put to sleep quietly and peacefully.

IF they made a mistake about the dose of chloroform, the Boss was prepared to overlook it, and as a hint he winked evilly at Bill and Shorty. Bill remained non-committal, while Shorty gasped: "Gor-blimey, murder!" The Boss, however, gave Shorty a look full of hidden meaning and Shorty appeared to be satisfied.

As soon as they finished the "job" they were to take Sanders on the heath and hide him among the bushes and then report immediately to the Boss. He would see to the rest himself.

The contract was sealed with a pound note apiece and Bill and Shorty went on their way to Hampstead, but not before Bill had made a mental note of the surroundings. During the journey Shorty told Sanders the history of the campaign. There was a "colored" Russian and a "blank" financier in it, and one Jim, now dead from causes unknown. The financier wanted to buy something off the Russian, and the Russian would not sell.

And then the financier hired their gang to break into the house, which they did and found nothing. Jim went on his own and then the papers said he was found dead in the Russian's house. The Russian is now dead, too, the gang "did him in." The Boss did it himself, someone told him. And now that chap Sanders is going to "cop it hot."

Shorty did not like the job and he told Bill so. He did not hold with murder. Bill asked him a question or two about the financier. Shorty knew little except that his name was Colon and that he was a "ruddy moneylender or something." It was shortly afterwards that Bill gave Shorty the slip, carrying away the chloroform with him. Shorty, in fact, turned up at 106, the Crescent, soon after Bill's return and watched the house for some two hours.

In the interval Sanders changed his clothes and went out about eight o'clock. Shorty had a good look at Sanders, failed to recognize him in his new rig-out, and having estimated Bill's reach and the approximate weight behind his punch, decided that discretion was the better part of valor, and melted into the night. Sanders came in again rather disappointed.

When he had finished the recital of his story, given in his own humorous style, he relit his pipe and said dreamily: "When I get hold of Mr. Colon again I am afraid that I will forfeit that £100 surety. I cannot be on good behavior when Colon is near. And I am also looking forward to a couple of rounds with the Boss before he is hanged. He is an ugly customer but I like them ugly."

The next lecture Borara gave me was on the principles of telepathic communication.

"From your books I see that you are already speculating on the uses of an insect's antennæ. Insects do communicate with each other by means of electro-magnetic waves, *i.e.*, they are capable of disturbing the ether and feel such disturbances a long way off.

"Take for instance your ordinary moth. According to the professor a male moth taken, say, a mile away from its mate, will promptly start to move its antennæ as if searching for some subtle influence in the air. After a while it will find the right direction and fly away. You will find that the male rejoined the female moth, who had been sending 'distress signals' till the call was answered. Your fire-fly possesses in its body a source for generating electromagnetic waves of wavelengths peculiar to light. Some fishes are capable of producing a voltage of over 500 volts, and deliver a charge that will kill their enemy.

"When we discovered on Mars the electromagnetic nature of heat and light waves, we became interested in the peculiar organisms capable of self-luminosity. The fishes and the insects supplied us with the necessary clue and we soon discovered that an insect's antennæ served for distant communication. We invented some delicate apparatus which put us into close touch with the insect world. The insects generate electromagnetic waves of very short wavelengths, *i.e.*, of very high frequencies. They possess in their bodies tissues and acids which enable them to produce electrical discharges of a very rapid nature, which they control by means of certain brain-cells.

"This led to an inquiry as to the presence of similar tissues and cells in human beings. The Martians knew at the time of some striking examples of telepathy between people separated by enormous distances.

"They knew that a human being, especially when dying, was capable of sending a message to another human being, very dear to him, over thousands of miles. They also discovered that some sort of energy is being normally radiated by every person, and apparatus was designed to detect and measure such radiations.

"After a good deal of laborious research it was discovered that human beings had four controlling cells in their brain, two at the front, one on each hemisphere, serving to control the radiation of electromagnetic waves, and two at the back for the purpose of detection, *i.e.*, reception. These cells are capable of automatically adjusting themselves to any wavelength within certain narrow limits.

"Although these limits are small they are sufficient to account for many millions of individual human transmitting stations. Every human being has an individual wavelength allotted to him or to her. It happens very seldom that two individuals have the same fundamental wavelength on which they transmit. If such a thing does happen it can be corrected surgically. The power generated by a human being is larger than that of the lower animals or insects and the penetration of the wave is such that owing to the enormously large frequencies employed, we do not know even now, of any screen capable of absorbing the telepathic ray, or shall we call it the Martian ray, even partially. Just as light and heat waves are capable of being propagated through interplanetary space to reach us from the distant suns, the Martian ray can reach any point of the universe if it is properly originated and properly received. In the case of interplanetary transmission, however, human power alone is not sufficient, additional power must be used for translation and amplification purposes. Thus, for instance, although Professor Ostrohoomov was capable of receiving my messages without the use of any additional power, I had to expend a double amount of energy, as his signals were so weak that they had to be amplified many thousands of times. After the discovery of the Martian ray, generation after generation made use of it and in a few centuries the receiving and

transmitting brain-cells were so developed that we have no use now for the auditory nerve or the tongue. A person wishing to receive a message from a friend simply goes down the scale of wavelengths till the necessary call is obtained. This is done instinctively so that one has no difficulty in attracting attention. There is no confusion, as one simply does not take any notice of calls not intended for one, just as one does not take notice of other conversations when talking to a friend in a room full of people.

"At present we have on Mars no radio-communication as you understand it, no telegraph or telephones. We do not write letters unless they are to be used for documentary evidence. We still have books, as they are necessary for instructional purposes, but we communicate with each other by telepathic means even if our 'correspondent' is at the antipodes."

CHAPTER III

A Lecture on Mars

"OUR solar system consists of the sun which is a fiery globe of gaseous matter, 864,000 miles in diameter. The sun with its entire systems of planets is traveling in space at the rate of 12 miles per second towards a point near the star you call Vega. The nearest planet to the sun of any interest, is the one you have named Mercury.

"This planet presents only one side to the sun, so that while one half enjoys an eternal day with the sun swinging like an enormous pendulum in its skies, the other half is covered by eternal night. Mercury presents a pathetic sight! Its human race is dead, but their works are still open to the gaze of astronomers. What they call a sun-cracked surface is nothing but the ruins of gigantic structures very similar to those on Mars. Mercury gave us an idea for our self-protection against the march of time and thanks to this very old civilization we Martians are still alive.

"After Mercury comes another planet, Venus, whose year is equivalent to 225 of your days. A mighty people once lived on Venus and their descendants still linger there, the oldest people alive in our solar system.

"The structures which seem so mysterious to your astronomers and which they call sun-cracks on Mercury, and canals on Mars, are a sheer necessity in the life of every planet at a certain stage. The enormous size of these structures apparently staggers your scientists, who cannot believe that they are human works. This is simply because you judge everything by your earthly standards. You gaze into the universe but you are still earth-bound.

"Now we come to your own planet. Really the Earth should not be where it is. Your legitimate place is beyond Mars, as you are a much younger planet, and were it not for the chance collision of two dark heavenly bodies, with the resultant formation of Earth and Moon, there would be no planet between Venus and Mars. We really bear a grudge against Earth as it has thrown our own planet a few million miles further from the sun and increased the duration of our year.

"Thus is explained the anomaly of your flourishing world wandering in a cemetery of planets, planets which are either dead or dying. Earth by taking up its position at an average distance of 92,900,000 miles away from the sun, not only pushed Mars back, but helped Mercury and Venus toward their doom, bringing them nearer to the sun. More than that, the collision in which Earth originated loosened the bearings of another dead world, which, attracted by Venus fell on it, crushing a civilization far greater than your own. Venus however survived the shock and remodelled itself anew. But your planet will not survive Mars, although your race may survive ours. Your planet is a freak and it shall be drawn into the sun long before the turn of Mars will come.

After Earth comes Mars. Our own name for the planet is Ahrah. Let us leave it out for the moment. The next planet is Jupiter, which is the largest planet in our system. Jupiter, and the remaining planets of the solar system, Saturn, Uranus, Neptune and Pluto are comparatively young, are still cooling, and are, of course, uninhabited. Mercury and Venus are moonless, they have no satellites. Earth has one—the moon. Mars has two, Jupiter has nine, Saturn—nine, Uranus—four, Neptune has one and Pluto —none. Beyond Pluto is the last planet of our system, which is still undiscovered by your astronomers. This planet we call *Bhroh*, it has no satellites.

"Mars or Ahrah is at an average distance of 41,000,000 from the sun. The diameter of the planet is 4,200 miles, nearly half that of Earth, which is 7,927 miles. The mass of Mars is however only 1/9th of the mass of your own planet, the density being 4 times as great as that of water on Earth.

"Mars turns on its axis in the same way as the Earth and our day is only 40 minutes longer than yours. The axis is tilted to the plane of the orbit about 23° 59° thus ensuring seasons very similar to yours. But they are much longer, since our year is equal to 687 of your days or 669 of our own. If we compare your seasons with the Martian ones, we will find the following:

Season	Earth	Mars
Spring	93 days	199 days
Summer	94 days	183 days
Autumn	90 days	147 days
Winter	89 days	158 days

"We too have our polar regions. They consist of small remnants of seas at the north and south poles, which are frozen throughout. During the winter in each hemisphere the snows extend these polar regions and creep forward towards the equator, covering considerable territories. As there are no other surface seas on Mars, the polar caps are our only supplies of natural fresh water when the snow is melting. There were seas on Mars, although not as extensive as those on Earth, and you can see how they were distributed on the map I am sending you now. This map shows the two hemispheres of Mars flattened out. These seas are now practically dry, as most of the water has found its way into the interior of the planet, at first by natural means, then, as evaporation increased, by artificial means for storage purposes. The sea beds are still capable of supporting plant life. They are our hot-houses, as you will see later. We have to manufacture our supplies of fresh water in sufficiently large quantities to support our plants, our animals and our population, the latter being very large considering the size of the planet. Our atmosphere is now very scanty. It contains oxygen, nitrogen and carbonic acid as well as a small quantity of water vapor.

"But the air is so rarefied that flight, for instance, is

absolutely impossible even for birds. These have degenerated now into wingless creatures.

"We do not live outside, in the open, as you do. If we venture outside at all, we wear special suits not unlike your deep-sea diving suits, carrying with us our own supply of air. Such suits are also necessary because the variations of temperature are extreme. While the sun is shining the heat is unbearable owing to the lack of atmosphere, in spite of the great distance from the sun. At night the cold is just as unbearable as the heat at day time, since all the heat received by the surface from the sun is rapidly lost again owing to the absence of the protective blanket of the atmosphere.

"The transition from extreme heat to extreme cold is very rapid, our twilight is short, and if caught outside unprotected, one freezes to death. The major part of our planet is a desert, a more terrible desert than even your Sahara. Your astronomers should see these reddish markings on the planet's face. You should also see some greenish markings which denote the partly-dried beds of our ancient seas, now covered with vegetation. Instead of being oceans of water, they are now oceans of hothouses, dotted with our numerous towns. The atmosphere there is much denser and contains a larger percentage of water vapor. The sun is also not so fierce in the depressions and it is possible to feed our cattle there during the day. In winter, naturally, some of the vegetation dies, in spite of the hot-houses. There are very few mountains on Mars, none of them higher than a 1,000 feet, but the general character of the ground is undulating, with deep depressions here and there, where seas or lakes have been.

"From time to time clouds, as you know them on earth, make their appearance, but the usual kind of cloud we get is a dustcloud, which is one of our greatest enemies. You may just imagine what a sand rain may be like!

"AS I said before, life in the open is impossible on Mars. Many generations back we foresaw the present conditions and took precautions accordingly. We knew that we were losing our seas, we knew that we were losing our atmosphere and thus most of the sun's heat. We wondered what the other planets were doing, the older ones. Mercury gave us the solution of the problem. Our powerful telescopes revealed the ruins of a vast Mercurian system of structures. We guessed their purport. Venus confirmed our theory. The Venusians were rapidly duplicating the Mercurian system. Later we got into touch with them and learned the fate of Mercury and their own conditions. We too decided to build vast reservoirs of heat for conservation of the sun's energy when it becomes scarce. Our open towns were rapidly becoming obsolete.

"Your astronomers saw our gigantic architectural works but they would not believe their eyes. Some of them assumed that they saw open canals serving for irrigation purposes, others decided that they saw a natural phenomenon. We covered our planet with a vast network of corridors built of special transparent, heat-conducting materials of synthetic nature. Each corridor is provided with a non-conducting screen, so that as soon as the sun's energy is cut off by the advent of twilight, no escape of heat is possible.

"The corridors are solid structures extending for thousands of miles and some of them are 12 miles wide. The floor, which is sunk 60 feet below ground, and the roof, have a parabolic section. The height of the corridors above ground varies with local conditions, but some are as high as 120 feet. The roof and the sides are such that they absorb the whole of the sun's heat without reflecting any appreciable amount. This heat is conveyed to a special fluid which, after being heated, is pumped into large tubes built on the vacuum principle so as to keep the fluid hot for at least 49 hours. This constitutes our central heating for the whole of the inhabited planet's surface, which is covered by the network of corridors and our roofed towns. The corridors also serve as the only normal means of communication between the towns. A submartian or underground system of communication, is established for locomotion and transport purposes. Fast trains driven by electronic engines travel to every point of the globe with a speed greater than that of your fastest airplane. 250 miles an hour is their average. The corridors also contain a vast ventilating system for conveyance of fresh air throughout the whole of the network from polar regions where air producers are installed, and where powerful pumps are pumping water from polar seas. Used up air is returned to the producers and is there purified.

"Large towns are served by a twin system of corridors built from 12 to 25 miles apart, the distance between them depending on the size of the towns.

"As you will understand, construction on such a vast scale required an enormous amount of machinery and a huge army of workers. We had to increase our population for this purpose. It took us two thousand years to prepare the race for this enterprise. We started building 5,000 years ago and completed the whole system, as you see it now, 400 years ago. Construction still goes on as new conditions arise.

"The lighting of this system proved to be very troublesome as the ordinary electrical method of lighting was out of the question on account of its waste of power. We finally hit upon a method of producing light in a gaseous space by utilizing the energy liberated by disrupting electrons. This proved to be highly successful, providing heat as well as light.

"If you glance at the map of our towns and corridors you will see that all the towns on the polar borders are air-producing, water-pumping and water-manufacturing stations. They feed the whole of the network. All the towns situated in the ocean beds have extensive farms attached to them for raising cattle and growing plants suitable for consumption. We do not consume food as you do. We have food factories attached to farms where the necessary animal and vegetable ingredients are chemically balanced and prepared in the form of fluids. These fluids are the essence of nourishing products and are usually taken dissolved in water. All tastes are catered for and there are over two hundred varieties of food. Two such meals a day are sufficient to support an adult person for a day and a night.

"Our two moons, which your astronomers call Phobos and Deimos and which we call Buahrah and Muahrah, are very little use to us, on account of their small size and great distance. As you on Earth probably know, Phobos is only 36 miles in diameter and is 5,800 miles from Mars. Deimos is only 10 miles in diameter and is no less than 14,500 miles away from us. They are, like

your own moon, quite inert, having no life on them of any sort."

What I have written above comprises only a small part of the information supplied by Borara. Night after night I covered quires of paper with writing and sketches. When the matter became too important to be trusted to writing I repeated Borara's words into Professor Ostrohoomov's dictaphone which instead of marking a cylinder was recording my speech magnetically on a steel tape. This tape was handed over to Sanders every morning and he deposited it in a safe. I never worked so hard in my life. Borara seldom finished transmitting before 4 o'clock in the morning. I usually slept till one in the afternoon and spent the remainder of the day in arranging and transcribing my notes, and getting ready for the next transmission.

A map showing the ancient seas on Mars.

MARTIAN "CANAL" SYSTEM

A. Air producing and Pumping Stations
B. Site of Borara's station for communication with Earth
C. Site of station for communication with Venus
D. The Capital of Mars (twin town)
E. University Towns
F. Interstellar communication station

ALTHOUGH our enemies did not trouble us much, we knew that we were constantly shadowed, and since Bill's adventures at the "Spotted Cow" we took care to hunt in couples, as we never knew when the enemy was going to strike next. At night we felt pretty secure against intrusion as our electrical defences were perfect and there was enough available to kill a whole regiment of spies. Moreover Mortimer had some of his men posted around the house.

But the enemy struck in an unexpected quarter. Mrs. Ostrohoomov had disappeared. The news was conveyed to me by my wife in person one morning early. It appeared that Mrs. Ostrohoomov went out shopping in Kensington High Street early on the previous afternoon, promising to be back to tea. My wife waited for her till six and then, having had some tea, went out to look for the missing lady. She was nowhere to be found. She then returned home, hoping that the lost one had come back, but her hopes were not justified.

My wife waited till ten before she rang up the police station and started to ring methodically all the hospitals in the West End. There was no trace of Mrs. Ostrohoomov. Greatly perturbed my wife went to bed and in the morning rushed to Hampstead with the news.

Bill Sanders did not hesitate a moment. "I bet you my bottom dollar Colon is at the back of this. He thinks that Mrs. Ostrohoomov knows something about the information from Mars and he will try his damndest to frighten the old lady into speaking." I was inclined to agree with Bill, and having reassured my wife I saw her off to the station in company with Sanders. On our way back we discussed the matter fully and decided on a plan of action. Bill Sanders went to find Mortimer, while I returned to my laboratory.

That night I put the matter to Borara and asked his advice. Borara asked me many questions about Mr. Colon and his associates and advised me to wait. "I do not think," said Borara, "that he will dare to do any harm to the old lady; he might try to frighten her, but she could not give him any information of importance if she tried; she does not know anything, except the fact of her husband's discovery. The professor assured me that he kept things to himself."

I mentioned to Borara the fact that I had to rely on Mrs. Ostrohoomov for the translation of the professor's notes from Russian into English, but assured him that there was nothing in those notes of any use to our enemies. Borara agreed with me that the information was harmless as the professor did not make any notes of the more important items.

After a little while, Borara said: "I would like to know a little more about this man Colon and his plans. If you can get him somehow or other into the chair in front of the reflectors, I will read his mind. Get him here and place him in the chair in such a way that his forehead is in the focus of the transmitter and switch on the power. Leave him like this on his own for about two hours, binding him hand and foot, then get in touch with me in the usual way.

"Being left alone he is bound to think, and he will be transmitting his thoughts to me quite unconsciously. As soon as we learn the facts we can act. If he is guilty I will punish him in a manner that will be more terrible than death. To kill him would be troublesome for you, as the authorities are bound to investigate the cause of his death, and although your medical men would never solve the riddle, suspicion might rest on you. Leave him to me. Mr. Colon does not know what he is up against . . . By the way, I take it that he will think in English, because, otherwise, unless he thinks in Russian, I won't be able to understand him. Anyway we will risk it."

When Bill Sanders returned after a long fruitless search, I explained to him Borara's plan of bringing Colon to book. "Good old Borara," yelled delighted Sanders; "some idea that! . . . Fancy, Colon registering his plans in Mars and having them sent back all pat. This is the best joke I have heard for a long time."

After discussing at length the ways and means of enticing Mr. Colon "into our parlor" we decided that I should write him a letter telling him that I have reconsidered the whole matter and that, having run short of money for my experiments, I am prepared to discuss his proposition again if he would fix an appointment at my Hampstead place. We decided also to apologize for Sanders' loss of temper during his recent visit to our place.

Mr. Colon replied to my letter by the next post. He was delighted to hear that I had changed my mind, and as regards my financial difficulties, he promised that they would disappear "like chaff before the wind." He "shall be pleased to call on me at any convenient time." I fixed the appointment for eight o'clock in the evening of the same day, and sent the letter by messenger.

At 8 o'clock Mr. Colon duly arrived. He was geniality itself. "Dear Mr. Cooper, I am glad to hear that you see my offer in a different light. You are already a rich man from now onwards. Your fortune is made. I have entirely forgotten and forgiven your friend's hastiness." I forced myself to smile and invite my guest into the laboratory. "I suppose you would like to see for yourself how the thing works, before we settle our financial arrangements." Mr. Colon beamed: "Certainly, my boy, certainly, delighted."

I indicated the chair placed in the focus of the transmitting reflector and suggested that Mr. Colon should try to get into touch with Mars for himself. He was only too eager, and in a few seconds I had him in position. The next move was Bill's. In a twinkling Mr. Colon was securely tied to the chair, which had previously been screwed down to the floor. And before the astonished financier could say "Jack Robinson," a full-sized gag filled his mouth . . . pushed in by an expert hand. Mr. Colon's face was very purple when we left him, and his eyes were rolling wildly. Two hours later Mr. Colon was freed, conducted to the door and kicked out unceremoniously by Bill. The astonishing thing about it was that Mr. Colon did not say a word when he regained his freedom. There was no doubt that he was badly scared, as apparently he could not understand our reason for such extraordinary behavior. Anyway, he went away silently, and I got into touch with Borara.

Borara's face was very grave. He started straight away without wasting time. "Mr. Colon is a very dangerous man. I have in front of me a record of his two hour's thinking. At first he was badly frightened and thought that you were going to kill him. He remembered the fate of one of his dupes who was found dead in your laboratory. Later he quieted down, and started thinking calmly.

CHAPTER IV

Mobilization

"BEFORE we go any further let Mr. Sanders proceed to No. 63, Balaklava Street, Forest Gate, and free Mrs. Ostrohoomov, who is being guarded by a woman, in one of the top bedrooms." I stopped my reception and communicated the news to Bill. Bill was outside before I finished talking. "Now let us examine Mr. Colon's intentions," continued Borara, "which he kindly declared himself." Mr. Colon is not his own master, he is working for a foreign country which is striving for World mastery and badly wants certain information from Mars. This information is believed to be in your possession. Your death warrant is already signed, as well as that of your friend, unless that information—is forthcoming. Your house is to be raided, you and your friends are to be disposed of and the whole of your apparatus is to be packed and removed to a house near Croydon. From there the packages are to be sent by airplane to a certain foreign capital.

"It appears that Mr. Colon has behind him a complete organization of spies belonging to that foreign country, but he is not anxious to use it in your case as they will have more important work to do later. He confessed in his mind that he employed a gang of East End roughs to dispose of the professor and the same gang is going to deal with you. He has failed completely to obtain any information from Mrs. Ostrohoomov, and was contemplating the use of stronger means of persuasion. He was thinking of a red hot poker.

"The foreign power in whose pay Mr. Colon is, contemplates a surprise war against your country. Two other powers are in alliance with it and are ready to act at a moment's notice. A strong fleet of submarines is concentrated in the Baltic Sea. On its shores a few miles inland a fleet of swift bombing planes is standing in readiness, carrying deadly gas bombs.

"It is intended that while the submarines are dealing with your unsuspecting fleet, the airplanes will carry destruction to London and other big towns, after they have bombed your airdromes and railway lines. The planes are to be supported by a fleet of dirigibles. Paid revolutionary agents are to be landed at various points to carry on propaganda among the civil population a month before the attack. Spies are instructed to blow up railway bridges, military dumps, trains, and any ships which may be found in port. A series of incendiary fires is to be started at the same time.

"Secret war preparations have been going on for a number of years, and Mr. Colon is perfectly sure that your Government has not the slightest idea of what is afoot. Simultaneous attacks are to be made on your colonies by means of hydroplane-carrying ships, disguised as tramps. Sedition is in full swing in India, in South Africa, among the natives, and in Egypt. The news of the professor's communication with Mars had delayed the attack by a year as the enemy was not sure if the British War Office were in possession of some deadly methods of attack and defence.

"As soon as you are removed and your apparatus reaches its destination, the enemy intend to get in touch with Mars themselves and obtain the necessary information. They have forgotten one thing—the willingness of Mars to supply such information.

"Still, this is unimportant. What is important is that you should act at once. Get into touch with your military authorities and tell them what is going on. They can easily test the value of the news within a few days. Obtain protection for your family and yourself. Mr. Colon is a desperate man, he is being pressed too hard by his paymasters, and if he fails them this time his life is forfeited."

Borara's news left me gasping. I was prepared for any villiany on the part of Mr. Colon, but I never contemplated that the affair would assume an international character. How much time had I at my disposal? How soon could I obtain protection for my laboratory? Should I go out and leave the house at the mercy of the enemies of my country? Bill was away searching for Mrs. Ostrohoomov . . . What should I do? My brain reeled . . . Suddenly I felt ashamed that I, a British officer, should lose my head in a moment of danger! I calmed down and started to reason and weigh up my chances.

I could not defend the house by myself against a gang of desperate men. No doubt the house is watched, but the watchers will not attempt anything yet, till they are in force, since they do not know that we have discovered their plans, unless Colon tumbled to it. No, that is impossible!

The most important thing at the moment is to warn the nation against the threatening danger. How? Telephone is of no use, who will believe such a story coming over the telephone? Go out? Where should I go? It was nearly midnight. The Prime Minister? Is he in London? Would it be too late to wait till the morning? How soon will the enraged Colon start to act?

Finally, I made up my mind. It was no use waiting for the return of Bill, he might go to Kensington, if he found Mrs. Ostrohoomov. Here I made an appalling dis-

covery. Bill had taken with him our only car. It was too late for trains and very unlikely that I could find a taxi at such a late hour. Still I decided to try. I left all the lights on, switched off the power of the outside defences and slipped out of the back door.

Where were the watchers? Were there any of Mortimer's men about? The night was dark. I could hardly see in front of me after the bright light in the room I had just left. As I turned the corner of the house, a sudden sound on my right riveted me to the spot. Somebody was in the garden. After a while I could see a little better. I distinguished a denser shadow in the dark. A man was leaning against a tree looking up at the windows. In front of him was a bright patch of lawn illuminated by the light inside. It seemed as if my retreat was already cut off.

A faint whistle sounded somewhere in the darkness. The man on the lawn suddenly came to life and ran silently and swiftly towards the conservatory door. Before he reached it I vaulted over the low wall into the next garden, hoping that he wouldn't hear me. Fortunately I landed on a bed of flowers and only a faint rustle marked my descent on all fours. Not taking any risks I traversed in a similar fashion a number of gardens before I ventured to climb a wall into the street.

In a few moments I was speeding towards the main road which was completely deserted except for a policeman in the distance. I set out at a smart pace towards the station, only to find out that the last train had left. A solitary lorry came thundering down. I signalled wildly to the driver who stopped, and a few seconds later I was sitting on the tailboard, speeding towards Victoria Station, ten shillings the poorer, but well satisfied.

Towards two o'clock I was passing the Home Office towards Downing Street. It seemed hopeless to try and knock up the Prime Minister, for the police would assuredly take me for a lunatic and lock me up. I decided to try Scotland Yard. There I went, and after a lengthy talk with the policeman at the entrance I was conducted inside and handed over to the Inspector on duty.

I INTRODUCED myself and explained that I was in possession of very important information which I would like to convey at once to the Prime Minister. The inspector had fortunately heard of my experiments and I saw by his face that he was favorably impressed and sympathetic. "I don't know, sir, about seeing the Prime Minister at this hour," he said, "but I will see what my chief thinks about it," and left the room.

After a few minutes he returned accompanied by a distinguished looking grey-headed man who introduced himself as the officer in charge of the political section. To him I told the whole story, starting from the murder of Professor Ostrohoomov up to the last visit of Mr. Colon and Borara's statement. The officer listened very attentively without interrupting me once, and when I finished he picked up the telephone and asked for a number.

"Hello! . . . Hampstead? . . . Carter here. What is happening at 106, the Crescent, What? Nothing unusual as far as you know? . . . Send there half-a-dozen men at once and report to me immediately . . . Yes, extension 239. Right you are . . ." He replaced the receiver and turned to me. "Care to smoke, Mr. Cooper? We shall have to wait a bit till they get the news." We sat in silence for some twenty minutes. At last the bell rang. "Hello, yes, extension 239. A burglary, eh? Got anybody? H'm. Some time ago? . . . Allright. Put a guard in the house. Good-night."

The man's attitude underwent a considerable change. While before he seemed to be only politely interested, now he was visibly moved. He picked up the receiver again. "Switchboard? Get me 10, Downing Street. Yes, urgent! . . . 10, Downing Street? Carter speaking, Scotland Yard. I must speak to the Prime Minister. Yes, most urgent . . . Hello, sir, yes sir, Carter speaking, Major Cooper's house at Hampstead has just been raided . . . He is here now, has some very important news to communicate. Right, sir, we shall be across in a moment.

Ten minutes later the Prime Minister was listening to my story, and in another half an hour the official clockwork started to grind out a lively tune.

Britain was warned in time.

My return to Hampstead was a sad affair. I found Bill standing amidst the ruins of my laboratory and pensively smoking a pipe. He looked up as I entered the room and waved his pipe in the air. "Look, oh stranger, at the ruins of the Herculaneum. Aren't they thorough? Took away every blooming thing, even your electric cigar lighter. A good job you managed to hook it."

On my inquiry about Mrs. Ostrohoomov Bill replied that it was a walkover. He went to the address indicated, knocked up the neighborhood, put his foot in as soon as the door was opened, lifted the woman guardian off her feet and carried her upstairs with his hand over her mouth, till he found Mrs. Ostrohoomov in a top bedroom. Having substituted the guard for the prisoner, he left the house in company with the rescued lady, and motored her down to Kensington. When he returned to Hampstead, he found the house in the hands of the police and himself under suspicion. "There are still two policemen in the kitchen," he added, "drinking our beer at my invitation."

There was no help for it but to dig out the original reflectors of the dead professor from the loft and try to get in touch with Borara by the old method.

Borara apparently forsaw the possibility and came in on enormous power.

I related to him the happenings of last night and told him that all the necessary machinery of state was put in motion. Borara complimented me on my resourcefulness and advised me to rebuild my installation with the help of the authorities. "You must keep in constant touch with me," he said, "I have mobilized the whole of our scientific forces. Over 50 telescopes are scanning the face of your planet at close range of vision, and the observers will not fail to report any movements of fleets or bodies of troops. It will be much better than your observation balloons. Our chemists are looking through old records of war inventions and their reports shall be conveyed to you as they come up. Now take this formula . . . It is the most deadly gas in the universe.

"Now, this formula is for an explosive of unusual power. It can be used for filling bombs and shells. Please copy this circuit. Yes, a parabolic projector, note the selenium cells. Use very heavy gauge wire. Yes, two paralleled alternators. Exactly as you know them.

"It will give you a death ray with a 250 mile range. Oh, yes it travels in a straight line. No, there is no known screen for it . . . Use a joint, just as in your anti-

aircraft gun . . . No, no. The operator will not be in any danger, but see that you do not catch your own troops by it.

"Here is another circuit. It is a submarine detector with a range of 100 miles and a direction finder; don't hurry there is plenty of time. Finished? . . . right.

"Now here is the last one for today. Yes, an ordinary wireless transmitting station. Note well the aerial circuit. Yes, you are right, interference can be created in any given direction. You can jam any station you like. Power? Oh, about 150 kilowatts. That will give you the range you will want.

"Good-bye for the time being, rely on Mars, we are watching . . . Keep a stout heart, and good luck to you!"

I spent a very active month after Colon's raid on my laboratory at Hampstead.

There was no alternative but to replace the whole of the apparatus, and, in view of the emergency, to increase considerably the power of transmission.

The Prime Minister insisted that I should install myself at Whitehall, where a suite of rooms was placed at my disposal. In the meantime disquieting news was coming from all parts of the world.

Dark clouds were gathering in the East.

A civil war was raging in China. Chinese war lords, bent apparently on satisfying their lust for power, were marching and counter-marching the length and breadth of China. No decisive battles were fought. A British secret service agent reported in one of his dispatches: "The conflicting Chinese armies are not fighting—they are training for a fight. They are carrying out maneuvers on a gigantic scale, and are rapidly accumulating arms and ammunition that are pouring into the country in vast quantities from the U. S., France, Germany and Belgium, as well as Russia."

American, French and Belgium "get-rich-quick" concerns were turning out guns by the million without a single thought that these guns might be turned against their own country. Japan had concentrated large armies on the Korean borders, ostensibly for the purpose of defending Korea against the invasion of the Chinese hordes.

This seemed natural enough, but for the fact that the Chinese were being trained by Japanese and Russian instructors while the majority of field officers in the Chinese armies were Germans.

A revolution broke out in Mexico. The old President was fighting with the new aspirant to the rule of the country, and while Japan financed the aggressor, America was supporting the old government.

As a result, Mexico too was accumulating large quantities of arms and ammunition.

RUSSIA picked a quarrel with the Baltic States. Large armies were concentrated on the frontiers, and although no shots had been fired up to then, a state of tension prevailed in Europe.

Poland, supported by France, was arming rapidly, having mobilized the whole of her resources.

The various European powers were watching each other closely. Tension was at breaking point.

A new rebellion broke out in North Africa, and France and Spain were kept busy there. A new "mahdi" manufactured in Constantinople, suddenly blossomed out in the desert, and between preachings of a holy war against the infidels, gave quite imposing demonstrations of his power as a miracle worker.

In Central and South Africa some powerful "jou-jous" were going on among the negroes. Pits were dug in the forests and warriors were purified and prepared for battle by the burning of dry grass torches.

In India constant clashes occurred between the different religious factions.

And while all this was going on, the League of Nations solemnly and deliberately discussed the claims of various nations to membership of the League.

Communism was belching forth fire and hate through its thousands of mouthpieces all over the world. Japan went red and became a republic of Soviets. The intrigues of the Russian Bolshevik Government were apparent everywhere, and large sums of money were distributed by Moscow all over the world.

Strike after strike occurred in Great Britain and the Dominions with an alarming regularity, crippling and paralyzing British trade. Unemployment was increasing by leaps and bounds. New labor leaders were coming to the fore, all of them members of the communist party and dupes of Moscow. Revolution was openly preached in the streets, and mob orators were fervently thanking God for Russia.

The British Government, however, did not seem to be much perturbed by the brewing storm or by the sedition ripening in the country.

Life seemed to flow very much as usual. Politicians talked and talked, financiers juggled with the exchange. Some of the newspapers insisted on clearing out the Russians, bag and baggage, while others were blaming the Government for not assisting Russia to build up her industries and for not granting her loans.

And the dear, matter-of-fact, British public went to bed every night pleasantly tired, but unperturbed by the doings of the foreigners.

The Government made no statement in the House of Commons on the state of world politics. Instead of worrying about events abroad it set out to put its house in order. A new economy campaign was launched. Woolwich Arsenal, for instance, in order to cover its enormous "overhead charges" and to keep the men employed, started to manufacture some electrical apparatus.

The workmen were soon talking about the large quantities of "searchlights" being built by the Arsenal. Some of these "searchlights" of the heavier type went to the dominions. Every ship in the Navy was fitted with one, and a good many of these "searchlights" were distributed along the coast. Needless to say, these mysterious new "searchlights" were nothing but the Martian death-ray machines. Various factories were turning out hundreds of large passenger airplanes and seaplanes, all fitted out with the new "searchlights" of portable type.

These flying machines were built, according to the Government, for civil aviation and in order "to keep the factories open and hold unemployment at bay." Two new wireless stations were nearing completion. A little difficulty was experienced there. The Post Office specifications involved unusual designs. The work was not entrusted to a radio firm, as is usually done, but the whole of the apparatus was constructed at Portsmouth.

The reason for this action became apparent later, when

a bill went through to the effect that no foreign capital should be invested in British electrical undertakings.

Radio firms for no apparent reason were going to rack and ruin. Huge losses were reported by large companies. Shares were dropping to a fraction of their par value. Radio factories were closed one after another and most of the manufacturing firms started to trade in foreign apparatus.

When the Government looked into the matter they found that most of the companies had been bought up by foreign capitalists and deliberately smashed.

A Government official interviewed one or two gentlemen from "New York" on this matter and was referred to their principals in Berlin. There was no hesitation on the part of the authorities. As soon as the bill became law, the two gentlemen "from New York" were told to go while "the going was good."

The whole of the electrical industry in Great Britain came under Government supervision and a Government representative was put on every board of directors. A question was asked in Parliament with reference to the high-handed action of the Government, which was on one hand controlling the electrical industry, on the other hand competing with it by manufacturing "searchlights" at Woolwich Arsenal on mass production lines.

The Minister responsible asked to be given notice of the question. The matter, however, was dropped as the inquisitive M. P. suddenly discovered that his health was not as it ought to be and decided to spend the next few months at Monte Carlo.

Colon's gang, having got away with my apparatus did not give any more signs of life. Colon himself came a cropper. He went clean off his head and had to be placed in a nursing home. His family broken with grief, went to stay with their relations. Mortimer and Bill Sanders, being fully in touch with the events, paid the same night an unofficial visit to Mr. Colon's residence. They were fortunate enough not to wake up the servants and had Colon's study to themselves for the whole night.

A very thorough search was made. A small safe was found behind a row of volumes of the Encyclopedia Britannica, on the bottom shelf of a large bookcase built solidly into the wall. The contents of the safe proved to be rather interesting; a foreign code book, a list of foreign spies in this country with their reference numbers and addresses; a list of agitators, a letter in code from a continental power giving full instructions and a plan of action to be followed on the outbreak of hostilities.

A letter from Moscow giving the names and private addresses of British Ministers, leading military officers and other important people, who were to be assassinated at a given signal. The signal to begin the campaign would be given from a broadcasting station by recital of a certain poem. Needless to say, in the list of intended victims neither Bill nor myself were overlooked.

Mortimer also found a sheaf of dispatches written in code by Colon, but apparently there had been no time to send them.

The two amateur burglars collected their booty and their tools and departed quietly without leaving any trace of their visit.

Going through the list of addresses of Colon's colleagues, Bill made an interesting discovery: the private address of the Boss was the "Spotted Cow." There and then Bill decided that the time was ripe to get even with the Boss, and taking Mortimer into his confidence, Bill made the necessary arrangements.

At 10 p.m. on the night following Bill's burglary the "Spotted Cow" was surrounded by the police and, as luck would have it, the gang were found to be holding an "at home."

Bill quietly entered the room where the Boss presided over an extraordinary meeting convened to discuss the sudden exit of Colon and the complications arising therefrom.

"Hullo Boss! How's life?" remarked Bill genially, standing in the doorway. The gang jumped to their feet at this unexpected intrusion and gaped open mouthed at him. The Boss, kicking his chair away, lurched forward and came close to Bill, who by this time was inside the room.

CHAPTER V

The Last War

AFTER a few preliminary unprintable remarks he seemed to recognize Bill Sanders, who was dressed exactly as on the first occasion of their meeting. Shorty tried to help the Boss' memory by assuring him that it was his long lost pal Bill who had come back. The alarm having somewhat subsided, the Boss, still hostile and suspicious, started to cross-examine Bill.

"Where the h—— have you been to all this time?"

"I have been lagged," said Bill in a breezy manner.

"Lagged?" inquired the Boss incredulously, "what for?"

"Oh nothing, just a bit of a crib as I've done before," explained Bill.

"So you are a crook, are you?" asked the Boss, "a jail bird are you?" Suddenly the Boss' wrath rose: "and what the h—— do you want here, you putty-faced cracker of cribs?"

"Oh, just passing, you know, thought I would look you up."

"Look us up, you would, would you? Now look here, stranger, I don't like the looks of you and I don't care much for your company—get me? . . . Now git, and be smart about it and don't let me find you anywhere near here again, or . . ."

"Or?" politely inquired Bill.

"Or that," replied the Boss, shooting out a huge fist close to Bill's face, apparently for his inspection and proper consideration. Bill looked at it long and thoughtfully.

"Why don't you wash it more often, Boss? If you hit anybody and break the skin, you will give the poor devil lockjaw . . . It's teeming with micro . . ." Bill never finished the sentence. He found himself parrying the Boss' steam hammer-like blows.

The gangsters, excited with the prospect of a battle, cleared the floor of chairs and tables, and ranged themselves along the walls.

The two opponents were badly matched. There was twice Bill's amount of muscle and brawn in the Boss. His gorilla-like arms had a prodigious reach, although his footwork was not all that could be desired.

But Bill did not flinch. Ducking from a straight right, he gave the Boss one on the chin with his left, followed by a lightning hook with the right to the jaw.

Before the Boss knew where his opponent was to be found, a blow between the eyes made him see stars, while his ribs sustained a hard impact with what seemed like a pile-driver. Then something kicked him on the point of the chin, and the Boss decided that he was facing the business end of a mule. His head was shaken in a terrible hail of punches from right to left and all the time the Boss himself was hitting empty air. The lights seemed to have gone suddenly dim. Something caught him in the chest and stopped him from breathing, the pile driver crashed again into his ribs.

Bill was working like a well-behaved twin cylinder engine, his fists shooting out with piston-like regularity, and reducing the Boss' ribs and jaws to pulp. There were no rounds, no intervals, no seconds, with towels and a refreshing gargle. Not even a referee! . . . just the enormous frame of the Boss with two wildly circling gorilla arms and a will o' the wisp whom those huge shoulder of mutton fists could never touch, could never reach.

The terrible punishment was telling on the Boss . . . his heavy breathing could be heard outside. He did not look pretty at any time, but in comparison with his appearance now, his ordinary features were handsome.

"Have you had enough, you swine?" hissed Bill, between his closed teeth. The Boss did not reply. As the last blow shook his chin, he fell like a limp rag doll, collapsing on himself, and went "to sleep."

Bill stopped and looked around . . . The gangsters, white-faced and shaking, stared at Bill as if he were an apparition from a strange world. Shorty broke the silence. "Blimey! he licked the Boss, he did, s'help me."

The police entered the room at the psychological moment. Before the gang realized what happened they were handcuffed. Bill indicated the Boss to the inspector in charge: "Inspector, please take care of this beauty, he is dangerous . . . I charge him with the murder of Professor Ostrohoomov. Incriminating documents are in my hands."

The Inspector looked at the Boss with wonder. "I don't know, sir," he said, "if this is a case for a stretcher or a coffin . . . If he lives, that face of his will take a long time to mend . . . You did punish him, sir, and no mistake."

Bill turned round in search of Shorty. He found that worthy handcuffed, in charge of a burly constable. Bill smiled and touched the constable on the shoulder: "A mistake, I think, this man is in my employ."

The constable thought that he grasped the situation, and grinning sheepishly remarked as he freed Shorty: "Sorry, sir, mistakes do happen on occasions like this. The gentleman did not mention that you knew him." A look of wonder shone in Shorty's eyes . . . He swallowed something rapidly and murmured: "S'truth!"

Leaving the police to deal with the gang, Bill placed his arm around Shorty's shoulders and went with him into the night.

On the 26th of August, at 11 p.m., the Intelligence headquarters on Mars called up Whitehall. Borara came in on full power.

"Good evening, Mr. Cooper, you are still waiting for the enemy to move, I notice." I described to Borara briefly the latest developments, and reported progress in our war preparations. Borara seemed to be pleased with the news.

"Good," he said, "your Government does not let the grass grow under its feet. Well, while you are working hard to make sure of the safety of your country and the whole world, for that matter, I had the doubtful pleasure of making the acquaintance of the leader of your enemy.

"He is a very curious man. He wanted to know if I gave any information to Professor Ostrohoomov and to you that would prove a dangerous weapon in the hands of your countrymen in case of war. I told him that I did not think so, but that I would make sure, if he would be good enough to wait for about half an hour while I looked up my records of our conversations, so that I could then tell him exactly how much you knew.

"I left him thus for half an hour thinking in front of his transmitter. A very careful record of his thoughts was made and I shall give you now the most interesting part of these records.

"It appears that Russia and certain other nations have formed an alliance for the conquest of the world. Russia is going to attack first, and hopes to conquer the whole of the European Continent and the British Isles.

"Part of the Russian army is already concentrated on the Baltic frontiers, ready to overrun the Baltic States and later Sweden and Norway.

"The remainder is facing Poland, which is to be crushed. As soon as Poland is disposed of, Russian troops will combine with her allies in an invasion of Denmark, Holland, Belgium, France, Switzerland, Italy and the Balkan Peninsula.

"The Russian President of the Soviets intends to turn the whole world into a single Bolshevik state with Moscow as its capital.

"The world war should have started a year ago, but owing to the fact that England had established communication with Mars and that there were rumors of your country being in possession of some wonderful engines of war, the Allies have decided to postpone the attack.

"A general strike is to be declared in every country two days before the actual attack is made. This move is calculated to disorganize transport and prevent rapid mobilization.

"Spies have instructions to blow up bridges, tear up railway lines and to set fire to power stations, ammunition factories and government buildings, to mine important roads and to arrange explosions in military dumps. Ships in port are also to be set on fire.

"THE submarines of the enemy allies are to proceed to various destinations and to be ready to deal with the navies of the world. Thousands of airplanes are ready to carry destruction to every center of importance. The larger type 'planes and dirigibles are to be used for transatlantic flight, starting in advance of the main forces. Ships are already on the high seas waiting for the attack to start on the United States of America. Similar tactics are to be employed in the conquest of Australia, South Africa and India.

"As soon as we had the record of the Russian's thoughts in front of us, my colleagues and myself came to the conclusion that the man was not fit to live. I therefore got into touch with him again and punished him exactly in the same way as I punished Colon.

"Well, my dear Cooper, if I were you I would advise

the Government not to wait any longer. Let the British strike first.

"I can give you now the exact disposition of the enemy's armies, navies and air forces. Our astronomer's have been working hard, and in spite of unfavorable atmospheric conditions on your planet they mapped out the areas of danger with the highest precision!"

I spent the rest of the night in taking down Borara's report and marking off on the map the positions of the enemy.

On the 28th of August a general strike was declared. No reasons were given to the Government and the strike leaders kept a determined silence.

There were no half measures this time.

The King, instead of proclaiming a state of emergency, as everybody expected, proclaimed a state of war. All the rebel leaders were arrested and shot at the Tower of London after a drum-head court-martial. Arrest followed upon arrest. The agitating party ceased to exist, every member being shot. Every foreign agent in this country found himself under lock and key awaiting trial.

On the 29th of August the Prime Minister delivered his historical speech in the House of Commons: "Yesterday certain individuals saw fit to declare a general strike intended to paralyze this country. There have been many general strikes in the past, but never in the history of this country have we faced such a strike as this. Never before have British workers been so grossly deceived by their leaders who were traitors to their own people. Aye, traitors in the pay of our enemies.

"Since the Great War of 1914-1918 we have been working untiringly for a lasting peace.

"Today we are faced by an unholy alliance whose aim is no more nor less than the conquest of the world. These three nations in the alliance have already divided the spoils between them. It will be of interest to this house to know that one nation is to have the Scandinavian peninsula, the Baltic States and Poland, also the whole of Canada and the United States of America.

"Another takes the whole of the remainder of the European Continent with the British Isles thrown in, the whole of Asia Minor, and the whole of the African Continent.

"The third is to have all that remains of Asia, including China, India, Indo-China, the whole of the Australian archipelago and South America.

"The enemy is fully prepared for the attack and have large fleets of submarines and airplanes at their disposal.

"I have now to inform the House that in spite of the unfriendly attitude adopted by certain countries, whom we considered our unofficial allies, yesterday afternoon I gave to every ambassador at the Court of St. James, except those of enemy countries, the following statement:—

"I am authorized to give the assurance that if your country is attacked in the immediate future the British Empire will give all the help in its power, provided that your Government will agree to give us liberty to act and to deal with the enemy in our own way, and also will guarantee to assist our forces in every possible way."

There was never such a scene of enthusiasm in the House of Commons as that which took place after the conclusion of the Prime Minister's speech. Except for half a dozen extremist members who made a hurried exit, the House rose as one man and cheered and cheered . . . and cheered.

The general strike collapsed ignominously the same day.

On the 31st of August I forwarded to the Secretary of State for War the following dispatch:

"28th of August.

"My Lord,

"I have the honor to report the proceedings in the air, under my command up to the time of rendering this dispatch.

"Position in the Baltic Sea on August the 27th.

"The flight of the heavy bombing seaplanes from England was effected in the best order and without check. Each unit arrived at its destination well within the scheduled time. The line taken up extended along Skager Rak, Kattegat, Sund, the Baltic Sea, ending in the Gulf of Bothnia with branches in the gulf of Finland and the Gulf of Riga.

"Acting on the information supplied from Mars, our squadrons sighted the enemy submarines going at full speed in the direction of the North Sea, under the surface, with periscopes awash.

"As soon as we took up the position, Martian high explosive depth charges were dropped from a height of 1,000 feet at 30 seconds intervals, for one hour. The whole of the enemy submarine force in the Baltic is destroyed, without the enemy's high command being aware of the fact, as their wireless communication is completely jammed by our two high power wireless stations X and Z.

"Having disposed of the enemy submarine craft, the attacking air force under my command turned in the direction of the Baltic Coast. When five miles from the Coast we accepted the challenge of the Russian, and portions of the German navies. We sank every ship. Our losses are very slight, two 'planes having been brought down by the enemy, but we succeeded in saving their crews.

"When well over land, the forces under my command took up the line of Læningrad, Pskov, Dvinsk and Vilna. At 11 a.m. the vast enemy airdromes, all along the lines, were sighted. Descending to 1,000 feet, we brought into play the Martian 'death-ray machines,' which have an effective range of 50 miles.

"THE effect of the ray was instantaneous. Every airdrome was destroyed, as well as the aircraft contained therein, the death ray detonating the explosives, apparently already on board the machines. We left the sheds on fire. An enemy squadron was met in the air, and every enemy plane crashed immediately it came into the path of the ray. Since the exact disposition of the enemy forces was known, there is no doubt that the whole of the German-Russian air forces on the Baltic Coast is wiped out.

"The enemy planes were apparently loaded with large quantities of gas bombs, as heavy clouds of gas were observed to be rolling in an easterly direction towards the encampment of the Russian troops.

"I have no losses of life to report.

"It is impossible for me to speak too highly of the skill evinced by the officers in command of squadrons, and the self-sacrificing and devoted exertions of their staffs; the command of the smaller units by their officers; and the magnificent fighting spirit displayed by non-commissioned officers and men.

I have the honor to be,
Your lordship's most obedient servant,
W. E. Cooper, Field-Marshal, Commander-in-Chief,
British Forces in the Field."

The next day, news came by wireless from New York.

The Mexican army, without any declaration of war, invaded the U. S. territory, and was marching on New Orleans. An engagement was also reported between the American Navy and an enemy in the East, the latter being supported by a large number of submarines. After a battle lasting for seven hours the American Navy, badly beaten, tried to retire towards the Panama Canal, but the enemy submarines were ready for it there, and battleship after battleship went down, as the torpedoes did their deadly work.

San Francisco, Los Angeles, Boston, New York, Philadelphia, Baltimore and Washington were bombarded by seaplanes, and were practically reduced to ruins. The losses among the civilian population were terrific. Every town was enveloped in a deadly cloud of gas escaping from numerous cylinders dropped by the enemy.

The American Government was caught napping, and they were kicking themselves vigorously for having disregarded the British warning that certain "maneuvers" on the high seas were a sham. During the night, troops were landed at different points from the American coast. Messages were now coming fast from all quarters of the globe.

Russian troops were marching into the Netherlands, Belgium, France, Switzerland, Rumania and Hungary. An invasion was also made into Finland and the Swedish territory.

Other enemy forces were attacking Bulgaria, and marching into Palestine. The most desperate position was in America. Two days before the attack, a general strike was proclaimed by American labor. The American regular forces found themselves isolated in various parts of the country, for even when they took over the railways, they could not establish lines of communication, because many bridges were destroyed, and railway lines torn up before the attack took place.

On the 2nd of September, however, like a bolt from the blue, the British Navy appeared on the scene. The British Government having anticipated coming events, had concentrated a naval flotilla in the Pacific and the Atlantic oceans.

The British attacked during the night.

Before the enemy's navy knew what was happening, "searchlights" points suddenly blazed in the darkness, and whenever the bluish light caught a ship, there was an end to it. British seaplanes coöperated by wiping out the submarines, as soon as they were reported from destroyers, equipped with Martian submarine detectors.

In the early hours of the morning, the enemy navy ceased to exist. The British seaplanes then flew landwards. The marching columns of the enemy were caught in the open and dealt with by the Martian ray.

America was saved!

Similar scenes were happening in South Africa and Australia. There the invading navy was dealt with before they had a chance to attack.

The rebels, nicely purified by fire and ready for battle, were dealt with by the Martian ray. The white man's joo-joo proved to be so powerful that the few who escaped spread the news with the rapidity of radio, and the natives became quite docile once more, handing over trussed up enemy agents, as fast as they could.

Another sharp engagement took place in Finland, and around the Swedish Coast.

Russian and German troops did not have time to do any damage before the Martian ray wiped out the whole of the attacking force. Sweden and Norway were also safe. The only countries to fight the invaders on their own account were Belgium and France, who were always ready to meet the invader.

But, were it not for the British Air Force, they could never have stopped this invasion with their own resources. As soon as reasonable safety was established throughout the world, the British forces started a series of punitive expeditions. This was done on Borara's advice: "Let the civil population of the plotting nations see for themselves the power of your weapons. This will put a stop to wars once and for all."

An order was given to evacuate Moscow and the capitals of other enemy countries. As soon as the civil population left these towns, they were razed to the ground. On the 5th of September, the British Government issued an ultimatum:

"His Majesty's Government of Great Britain regrets to have to announce to the enemy population, that unless they surrender unconditionally, within 24 hours, and hand over to the League of Nations the members of their present Government, as well as every member of the Communist party, and every foreign instructor, adviser and agent, the policy of punitive reprisals will be continued till this request is complied with."

Thus finished the last war on Earth.

A League of Nations meeting was convened in Paris. Nearly 50,000 men stood on their trial. Commisars, junkers, war-lords, and plotters, stood before the international tribunal, trying to justify themselves, and accusing each other. The majority of them were found guilty and sentenced to death.

The President of the Tribunal, in summing up at the end of the trial, said: "In every war the losses among the combatants run into hundreds of thousands. If we now, instead of losing good loyal citizens, hang these 50,000 criminals, we shall not only end wars for ever, but disinfect the globe of its vermin."

The British Government offered its resources to the League of Nations for policing the world, till peace was finally restored.

A universal peace treaty was signed shortly afterwards.

The League of Nations requested Great Britain to retain her defensive Martian weapons for policing purposes, and an international police force was formed under British officers, and stations were established throughout the world.

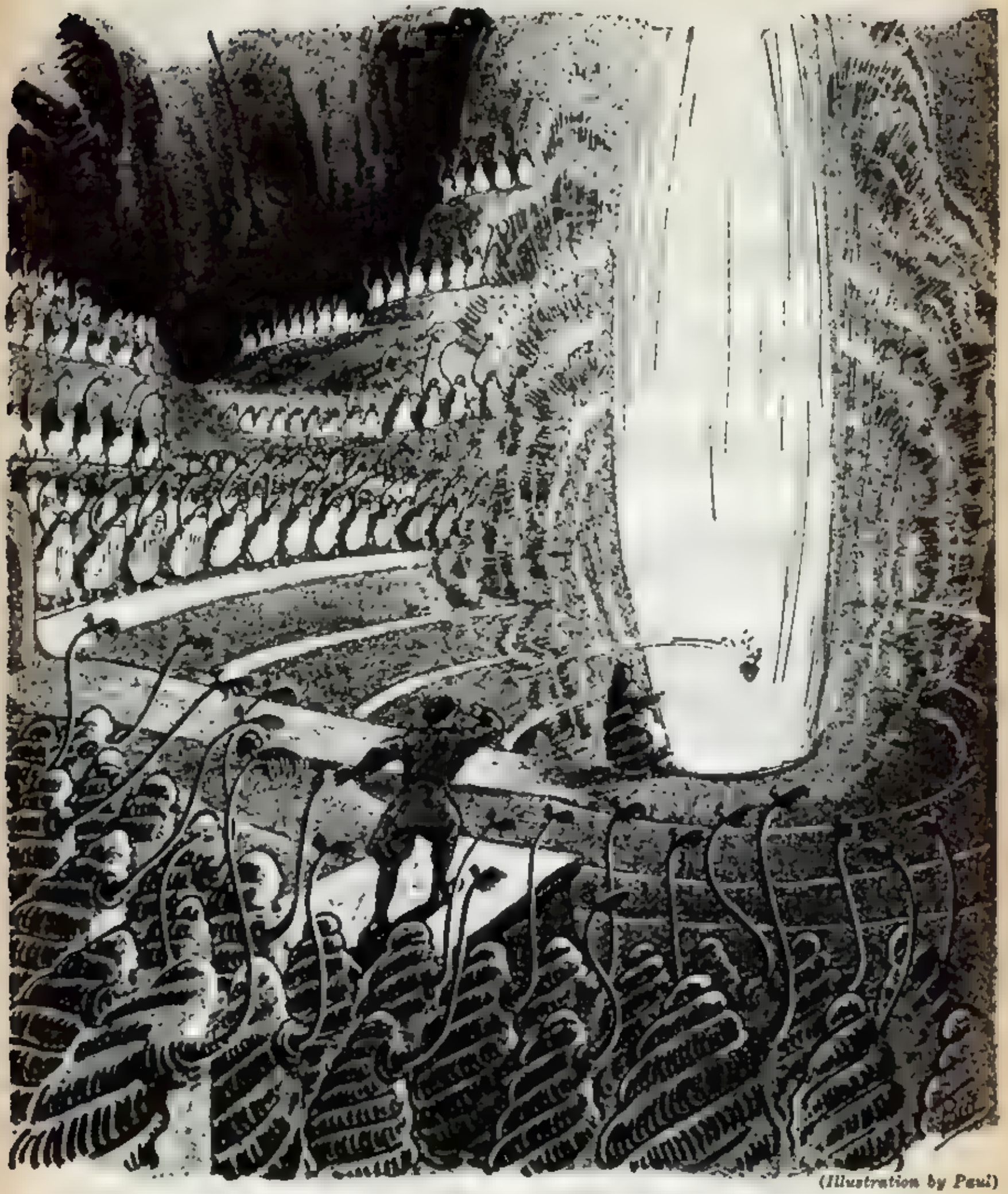
Every country showered honors and titles upon Borara, Bill Sanders, and myself. "I shall want a blooming G.S. wagon to cart about my decorations for me," remarked Bill, after the investiture, which lasted for nearly three hours. "I would not mind it so much," continued Bill, "if the Frenchman and the Belgian would not insist on kissing me on both cheeks. I felt as if I was a kid again, and met my old rich, bewhiskered Uncle Henry."

Bill deserved every honor that was conferred upon him,

(*Continued on page 87*)

UNDER ARCTIC ICE

By **Walter Kateley**



(Illustration by Paul)

With a dramatic flourish I hurled the ignited bundle fairly into the mouth of the gaping chasm. Instantly there was a blinding flash followed by a terrific explosion.

UNDER ARCTIC ICE

THERE was a sudden shock, as if the airplane had received a tremendous blow. I was conscious of a quick rushing of wind and a snapping of stays, while the nose of the machine turned sharply upward.

Abruptly aroused from the half stupor of a long, cold journey, I looked fearfully about while my hand instinctively sought the stabilizing controls. Against the starlit sky I saw the end of a wing crumple and wither, like a leaf consumed by a flame. There was no time to consider causes or comprehend details. A crumpled wing could mean but one thing. Within a very few seconds the plane would be flopping over and over and hurtling to the ground.

With the promptness of a soldier on parade drill I made sure that my legs were free from any entanglements; thrust my hand over my shoulder to make sure that my parachute pack was properly adjusted; clasped the ring of the trip-line and tensed my muscles for a spring.

I hesitated a second to consider. Could there possibly be any mistake? Had I seen something on my glasses, something flying into my eye?

I looked again. There could be no mistake. The left wing was in ruins; was even then swinging downward toward the horizon.

As the machine veered over, I jumped.

To me it was of no consequence that there was nothing beneath me but the trackless and frozen wastes of the great Arctic snowcap. The technique of the practical flyer, drilled into the brain with the uncompromising precision of a fireman's drill, prompted my nerves and muscles to perform this act as automatically as a fireman grabs his helmet and slides down the brass pole.

After a moment of breathless suspense I felt my downward flight checked and steadied by the opening of the parachute; and I knew I had successfully performed the maneuver requiring both luck and skill—which is the only possible salvation of the wrecked flyer.

At almost the same moment my plane went hurtling down past me, indicating that my action had been none too soon.

WALTER KATELEY

THE Arctics, despite the many journeys that have been made into their vastness, still remain places of desolation and mystery. It is suspected by many students of the earth that many events of incalculable importance to the race have had their beginning at the poles. It has been already ascertained with a fair amount of definiteness that our weather is made in the polar regions, and that by detailed study of the weather at the poles we could acquire a science of weather forecasting.

What this would mean to the race is almost impossible to judge, but it would certainly exercise a revolutionary influence on transportation and on agriculture.

Mr. Kateley gives us here an adventure of the Arctic regions that shows some of the great possibilities that lie hidden in the immense ice caps. And perhaps when the Arctic is more fully explored, there will come to light things even more amazing than are pictured here.

Then for the first time I had a moment to consider my situation. I didn't know exactly how high I was. My altimeter had been registering around 7500 feet above sea level; but of course I had no accurate means of knowing the elevation of the terrain in this remote district. But if, as had been estimated by various geologists and other scientists, the Arctic snowcap rose to a height of about a mile here near the pole—I estimated that I was at about 84 degrees—that would leave me approximately 2,000 feet above the eternal snow.

The earth was shrouded in darkness, the intensity of which was only slightly relieved by twinkling stars and occasional weird flashings of the Northern Lights—the Aurora Borealis. But from what I could see I concluded that my hurried estimate of 2,000 feet was not far wrong.

I wondered if I would alight amid rough, broken ice and pressure ridges or on smooth wastes of drifted snow. In either case it was a cheerless prospect and one that offered but little hope for succor. But my spirits were buoyed up somewhat by the natural exhilaration of my rapid flight through the atmosphere.

I had expected to experience piercing cold in this flight but to my surprise I was almost warm, as though I were in an atmosphere that was scarcely at freezing. (When I had last looked at the thermometer it had been registering 34 below, Fahrenheit. I wondered why the air seemed to be rushing past me at such a tremendous rate.

And so this was to be the ending of Professor Pillsbury's philanthropic venture. The two hundred books which he had selected with so much care, and with so much advice and comment on the part of the public, and which had been sent by airplane at such great expense to become the model library of the Permanent International Research Station of the Arctic, were already buried deep in a mass of tangled wreckage.

And I, who had considered it an honor to be chosen as the bearer of this unique gift, would shortly be an infinitesimal, dark dot on the white surface of the endless reaches of snow and ice!

But there was little time for thoughts on the vagaries of Fate. I must attend to the business of landing. I must be nearly down now!

I STRAINED my eyes to make out what was below. All was pitch darkness directly under me, which seemed queer, especially since a little way in the distance I could see white snow and broken ice gleaming in the dim starlight.

All of a sudden the horizon seemed to shoot up past me on all sides, and it seemed as if I was dropping into a great hole.

The stars were still shining above, but on all sides was black night; while the intensity of the upward rush of air was even more pronounced.

Looking down I was astonished to see a great number of tiny points of light. Could these be stars? I wondered if I might not be looking at a reflection of the sky. The idea that I had fallen into a hole was dissipated by the realization that the starlit area below me stretched away in all directions.

I wondered if possibly I had become confused and lost all sense of direction, and if what seemed "down" to me was not really down?

I had heard that at the Pole all horizontal directions became as one; every direction being South.

I wondered dimly, half whimsically, if what was normally "up" and "down" also became as one direction, and would that one direction be up? Perhaps I had wandered from my course and was at the Pole!

This was obviously a senseless thought, and not one that should be indulged in in an hour of conscious wakefulness.

This confusion of direction was more like a dream experience than anything real.

Could it be, I wondered, that I had been unconscious from the cold—I remembered that I had been almost unendurably cold—and that I had fallen into that sleep that usually precedes the end when one is frozen to death? And was this only a troubled dream, the vagary of an expiring mind?

But no. It could not be. I was suddenly conscious of hearing a sound; a sound that was unmistakably real. It was the ringing of a bell, somewhere in the distance.

Although the sound was reassuring, it was nevertheless unexplainable. Who could be ringing a bell here, in the frozen wilderness, hundreds of miles from the nearest human habitation?

I gave it up. There would be time enough to consider such anomalies when I had landed. And presently I did land, safely, but not very gently, on a hard surface of snow.

Disengaging myself from my parachute, I left it lying where it fell and attempted to get my bearings.

It was very dark, but I thought I could make out the edge of the snowdrift on which I had landed. I could see tiny specks of light in the distance in all directions, but none that seemed close by. There was, however, one star-like glow that appeared a little brighter than the rest. I made for it.

I soon came to the edge of the snowbank—it seemed to be melting rapidly—and slid down onto solid ground. It was good to be on firm footing once more; but I found it rough and hard going in the darkness.

As soon as I left the snow, it became oppressively warm. I sweltered in my thick Arctic clothing. My feet commenced to feel as heavy as lead. An overwhelming weariness beset me.

The length of the journey, together with the cold and the excitement I had experienced, had practically exhausted my strength. The change into warm atmosphere made me sleepy. I thought I might as well rest a while, and then go on. My feet encountered something that seemed to resemble a heap of straw or shavings. To me it was a providential find. I slipped off my coat and boots and slumped down, as I told myself, for a short rest. For a few minutes I tried to reason out what kind of a world I had fallen into, and what I ought to do. Then I fell asleep.

I awoke wet with perspiration but much refreshed, and with the feeling that I had slept several hours.

Sitting up to look about, I saw that it was already getting light; though I could not see that the light came from any particular direction, as it does at daybreak. Only the visibility was becoming greater.

Soon I was able to make out something of the landscape, which seemed fairly level and sprinkled with small trees. Presently appeared the outlines of numerous slow-moving shapes. I could not make out whether they were wild animals or human beings.

THE stillness was broken only by a low, indistinct hum in the distance, like the sound of machinery.

Then a bell-like sound, such as I had heard during my parachute descent, rang out clear and distinct; and at the same moment the light suddenly became much brighter.

The effect was as of the sudden lighting up of a great theater. But the distances were more magnificent and the light effects more varied than in any playhouse I had ever seen.

I was in a vast, cone-shaped place seemingly a mile wide, the sparkling walls of which mounted up and up to apparently interminable heights and ended in an open circle of blue sky, where there shone twinkling stars such as one sees from the bottom of a deep well.

The lights, rapidly changing in color and intensity, sparkled and danced on the gleaming distant walls. In some places they appeared white as frosted snow; in others blue as the heart of a glacier.

Now it was evident that the light was coming from one particular location somewhere behind me; and its rays, reflected from the ever-curving walls at a myriad different angles, gave all the colors of the spectrum.

Here was an area that partook of the beautiful green of the emerald, and there were the deep, shooting fires of an opal. There was an area that resembled the indescribable shades of a sunset sky, and another that was the perfect replica of a tropic sea.

I was so enthralled with the magnificence and weird beauty of the scene that I was scarcely aware of the beginning of a melodious sound that gradually dominated my attention.

As the light went through various stages of color and intensity, finally becoming pure daylight, this swelling volume of sound seemed to fill all space.

It was as though a myriad of exquisitely-toned musical instruments were playing in unison.

The sound was so altogether soul-thrilling and inspiring

that I devoutly wish I could describe it. But I find that words—such words as mere spoken language knows—are utterly inadequate and powerless to more than vaguely hint at its entrancing quality.

Loud and clear and perfectly modulated, it seemed to arise from the very earth and spread in all directions until it rebounded from the distant curved walls and ascended, with ever mellowing rhythms, to the topmost reaches of the cone.

Never had I heard any sound—it was more than music—that could in any way compare with it. But there was an indefinable something about its intonations that was suggestive of divine worship.

It had recently been my privilege to attend the celebration of High Mass in Westminster Cathedral in London; and the all-pervading sounds of the music and intonations in that architectural triumph of acoustics were the weak semblance of this I was now hearing.

But what, I wondered, could be the texture and structure of musical instruments that could produce such indescribable melody?

As the sounds died away, I saw with some surprise immediately before me an impressive scene, which due to the light display and my raptured listening to the music had so far escaped my notice.

There was a great smooth green field, here and there broken by small ponds and interspersed with small trees—everywhere, near and far—there was a multitude of queer shapes. Somewhat of the shape of queen conch shells they were, except perhaps a bit more slender and a little less pointed at the small end; or perhaps I should say the top end, for they were in a somewhat upright position.

They were nearly as tall as an ordinary man, or so it seemed to me. The nearest one was some fifteen or twenty rods distant. They were all perfectly motionless, and all leaning in the same direction. Their attitude was for all the world like that of a great congregation kneeling on prayer stools from whence the pews had been removed.

Looking closer, I saw that each was apparently supported in its leaning posture by a small slantwise prop extending from about halfway up the body to the ground.

From their attitude I instinctively concluded that they really were worshippers; but because of their peculiar shape it seemed impossible that they could be human beings.

They were not all the same color; some seemed to be brown and others pearl grey. At first I suspected this was merely a difference in their costumes, and yet they did not seem to be wearing clothes but to be covered with some smooth, shiny substance such as burnished metal or polished shell.

CHAPTER II

The Shell People

MY first impulse was to emerge boldly from the heap of what now in the light of day looked like coarse excelsior, in which I was partially hidden, and go at once to see what manner of creatures these were.

But I restrained myself. It occurred to me that my reception might be anything but pleasant. They might be some sort of wild beasts that would pounce upon me and rend me, or possibly stampede in fright, trampling me under foot.

Perchance they were only the domestic animals of the people who inhabited this strange world into which I had blundered. I was convinced there must be creatures of human intelligence somewhere about, else why the lights, the bell, the wonderful music?

Although they stood motionless, I knew they could move; for I had seen them assembling in the dim light before the sudden dawn. At least, I felt fairly sure it was they I had seen moving slowly about.

Even though they were human, they might be savages; even cannibals. The thought that they were engaged in divine worship was more or less reassuring; but even that might mean little, since it often happens that the most bloodthirsty tribes of savages are the most devout of god-and-devil-worshippers. The darkest period of earthly history—that of the Inquisition—was characterized by excessive religious zeal.

At any rate, I decided I would not intrude while they were thus engaged; in case this should prove to be a form of worship, such an act might enrage them and afford some pretext for doing away with me.

I sank back into hiding, resolved to be cautious and await developments.

For what seemed a very long time nothing happened. Then there was a single stroke of the bell in the distance, and I peeked out to see the strange beings all in motion; singly or in little groups of two or three they moved away, some in this direction, some in that.

Their movements seemed slow and cumbersome as they balanced along on two little short legs that scarce lifted their bodies clear of the ground. None of them passed very near to me; evidently I was in the midst of a small tract of wasteland, somewhat remote from their paths.

When nearly all the rest had gone, I noticed two of them coming almost toward me; but they turned aside and entered a tiny thicket of trees and bushes, in the center of which I could make out a sort of low, frame-like structure. Here they remained; but occasionally I caught sight through the foliage of their dim outlines.

After an hour or two, I decided to try to get close enough to see what these creatures really looked like, and what they were about. I was commencing to feel very hungry and thirsty; and I realized that sooner or later I must learn to cope with my new situation.

Lying flat on the ground, and keeping as much under cover as possible, I managed to creep and wriggle to the fringe of the little thicket.

Here the low bushes screened my movements so thoroughly that I had little fear of detection, and I skulked along in a half-standing posture.

Suddenly, before I realized I was getting close to the object of my quest, I looked out from a clump of especially dense foliage and saw right before me and scarcely a dozen paces away a long, low workbench and beside it the two strange creatures.

I was so close I dared not attempt to retreat or even move for fear of attracting their attention. I could only crouch and gaze spellbound at one of the strangest sights, I am sure, that ever mortal eyes have seen.

They appeared to be people of a sort; yet so utterly unlike all the kinds of people I had ever known as to be scarcely recognizable as such. The two looked much

alike; I concentrated my attention upon the one nearest, who stood facing directly toward me.

Like the ones I had seen at a distance, he was somewhat conical in general contour; but there was a very gradual outward curve from top to bottom, and he was enclosed in a thick, smooth shell open on one entire side, where the aperture was bordered by heavy rolled edges.

Filling the upper portion of this aperture for perhaps the last foot was what I took to be the creature's head and face, although I could see no eyes.

There was a smooth upper portion somewhat resembling a human forehead; and below what appeared to be a broad, short nose surmounting a spacious mouth.

This mouth was human in contour and of a kindly, almost jovial expression but inordinarily large. Where one might expect to find ears, I could detect no trace of such organs.

OF a chin there was only a mere trace; beneath this was an expanse of delicate white skin. The remainder of the front was covered by curtain-like garments suspended from the sides of the shell, and composed of some cloth-like material.

The stubby and sturdy legs, hardly a foot long, protruded below the heavy shell in such a manner that the creature had to lean forever forward in order to balance. The legs were bare, and ended in sturdy, elephant feet.

From near the left side, and considerably below where one would expect a shoulder to be, there protruded a limb that was rather like a human arm except that it seemed to have several joints fairly close together; and it terminated not in a hand but in a single finger-like process not unlike an elephant's trunk. This was no doubt that brace-like member on which I had seen the creature leaning at daybreak.

But strangest of all, in fact entirely incomprehensible, was the organ that sprang from the region where the right arm should have been, had this been a human shape.

Perhaps four feet long, and resembling the slim and many-jointed neck of a swan or flamingo this member encased in a net-like sleeve hung in a long loop and terminated in an amazing creation that seemed neither animal nor human.

Had it not been for the long connecting member—shall I call it a neck—linking it to the main body, I might have mistaken it for a separate animal as it performed on the workbench.

It was perhaps a foot and a half long over all, half as high and a third as wide. It would weigh, I fancied, about fifteen or twenty pounds. Extending out on all sides was a strange assortment of variations of human fingers and hands. Some were large and powerful; others tiny and delicate. One member might be composed of but a finger and thumb, while the next one would have five fingers and two thumbs or no thumb at all. Some seemed to be jointed like human fingers; others were mere flexible tentacular processes capable of universal movement.

Surmounting the middle of this complicated organism was a small turret-like member a little larger than a man's fist, and capped by an irregularly-shaped patch of shell resembling the main covering of the parent animal.

From beneath the lower edge of this cap peeped two tiny ears; and here, I saw to my surprise, were the eyes which had been missing from the creature's face. They were not greatly unlike our own eyes, although somewhat smaller.

This seeing and hearing organ was apparently set on a veritable owl's neck; for it revolved and darted this way and that with bird-like agility.

The creature was working on some kind of mechanical device the nature of which I was unable to determine; and this working unit—half head and half hands—which for want of a better word I propose to call the auxiliary, was busy with some small metal parts which it seemed to be fitting together.

The bench was strewn with a variety of queerly-shaped tools some of which the creature picked up and used with great quickness and dexterity.

The various members seemed to be either hands or feet, as the occasion demanded; for they functioned in running this way and that with speed and agility. Occasionally the organ doubled around, end to end, in order to use many hands in one place. Again the members at one end moved about in quest of some tool or part while the other end was doing some bit of filing or other work.

Now and then it squirmed about in such a way as to bring the eyes in proper position to see what was being done; and from time to time something was held up before the eyes for inspection.

It was such a marvelous performance, and the whole creature was so altogether strange and interesting that I forgot my own position and the whole circumstance of my being there. Suddenly, as I leaned a little farther forward to see what the auxiliary was doing, a small twig broke with a pronounced snap. Instantly the pair of alert eyes were focussed upon me.

It was a tense, awkward moment. I knew not whether to retreat or attempt friendly overtures.

That I had to do with creatures of human, if not superhuman intelligence, I had no doubt. On the spur of the moment I decided to act as though they were normal people and see what would happen.

"Pardon my intrusion," I said with as much self-possession as I could muster, at the same time stepping into the open.

With a swift movement the one arm came into play, sweeping the auxiliary from the bench and thrusting it under the curtain-like clothing on the right side, close to the thick shell rim.

Here the auxiliary huddled, covering itself up all except its eyes. But the eyes evinced no fear or hostility, only amused interest. The other workman followed suit, and both rose to their feet, rendering them only two or three inches taller.

THE one I had addressed made no reply. I advanced to the opposide side of the bench and stood irresolute, uncertain what to do next.

I wondered if the creature could speak. I hoped, while I almost feared that he could. Naturally I wished to appear friendly; but I was at a loss to know what sort of gesture of friendship to make. Should I offer to shake hands? The creature had no hand to shake.

Perhaps I ought to offer a gift.

"I am sorry to have disturbed you," I apologized, looking uncertainly from the observing eyes up to the face and back again to the eyes, not knowing which I ought to address.

For a moment both stood regarding me in silence; and

I noticed that the one I was speaking to was a trifle larger than the other, and his face—if one could call the portion of an animal's anatomy lacking both eyes and ears a face—seemed a bit darker and somewhat more wrinkled as if by age. His shell also appeared a little thicker. They were both of the same color; a clear, translucent brown like the color of a freshwater snail.

There was an awkward pause; then the shell of the larger one revolved slightly toward his companion, and he gave voice to some expression.

Of course, I could not understand the words. But I did realize that they were uttered in the most wonderful and impressive voice I had ever heard. Though the tones issued from the mouth, yet they seemed to come not from the throat or chest as do ours, but from the depths of his whole form. It was as if his great shell were a huge sounding board vibrating to a delicately-tuned instrument. The timbre of the voice was so thrilling and awe-inspiring that I instinctively felt myself to be in the presence of one of great intelligence and deep feeling.

The other made answer in the same marvelous manner. It was not hurriedly or excitedly, as would have been natural in view of the sudden appearance of such a freakish creature as I must have seemed to them, but in measured, resonant tones that made my own words by contrast sound ridiculously shallow and squeaky.

And now I realized that the wonderful and all-pervading music I had heard at daybreak had been a chorus of the voices of these strange people. That they were really people I could no longer question.

Again I considered tendering a present. I felt in my inner pocket for something to offer. The first thing to come to hand was my fountain pen.

I drew it out and proffered it to the one across the bench, just as he was turning back from addressing his companion.

He drew back as though slightly startled and instantly from the vicinity of the all but hidden auxiliary there shot forth an instrument that looked like a cross between a flashlight and a pistol. It was obviously a weapon of defense.

Both my offering and my gesture had been misinterpreted.

I made a rather nervous attempt to laugh it off; and removing the cap from the pen, made a few marks on the smooth bench top. Then I again offered it to "mine host."

He laughed understandingly; the most musical, ringing laugh imaginable. It was a laugh that seemed to set his whole being to vibrating like some wonderful Oriental gong; that filled the very atmosphere with a joy and a sense of pleasant well-being that was altogether contagious and that banished all sense of repulsion or fear that I had felt for these newly-discovered creatures.

With the help of the substitute for a left arm the auxiliary came forth from its retreat and took the pen from me in one of its numerous hand-like processes and examined it minutely, while the smaller companion drew closer and looked on with interest.

Then with both auxiliaries regarding me from the bench, the principals settled down on the rims of their shells and discussed me for a moment or two in language that was Greek to me, but in voices that inspired me to the greatest wonder and admiration.

Presently the larger of the pair brought out an instrument from somewhere about his person; a device that seemed to be a tiny replica of himself, except that the open side of the shell was entirely taken up by a small keyboard. This was passed to the auxiliary, which made a series of adjustments, in the manner of writing on a typewriter. Then it was held up to the wide mouth, and a conversation took place with the big voice of the large creature and the little voice of its tiny replica speaking alternately.

This performance must have been an announcement of my arrival; for presently several low cars appeared on the road that I now noticed ran along the edge of the wasteland in which I had been hiding, and over a small hill in the direction whence had come the sound of the bell.

The cars looked something like the low trucks which we use for hauling goods in warehouses. They were no more than a foot high, and were composed almost entirely of a light-colored material which I afterward learned was aluminum.

However, they differed from freight trucks in that their workmanship was elaborate and ornamental. That the cars should be especially low seemed quite natural since the people were obviously poor climbers; and that they should ride in open cars also seemed natural since in this little world there was conceivably no rain or wind to contend with.

On each of the cars there were two or three passengers.

CHAPTER III

Before the Horgost

THE cars drew up beside the outdoor workshop, and the occupants, perhaps a dozen in number, all looking very much alike to my inexperienced eye, helped each other to dismount; very awkwardly and clumsily, I fancied.

The individual to whom I had first spoken—I soon learned that he was called Barbon—went to meet them and evidently proceeded to tell them of my arrival. As they gathered round me he assumed a sort of proprietary air and exhibited me as one might some pet animal or other prized possession.

He removed my cap, turned me around and exhibited my hands, all in the most friendly manner but with a somewhat disconcerting familiarity.

Then one of the newcomers, evidently an official of some sort, began to ask questions; most of which Barbon apparently could not answer. Then he endeavored to question me by unintelligible words and signs. But Barbon interposed. If one might judge from his tones and gestures, it was not for others but for him to communicate with me.

Though I could not comprehend most of his gestures, performed with his somewhat ungainly substitute for a hand and arm, I naturally inferred that they desired to know whence I came and the manner of my arrival. So I tried to show—I hope somewhat intelligibly—in pantomime and with the meager stock of gestures commonly used by users of the English language how I had flown from a far-off land, and how I had met with an accident and fallen into this strange world. I pointed to the place where I believed I must have landed.

Some of this they must have understood, or at least thought they understood; for they appeared satisfied and fell into animated discussion among themselves.

When Barbon again turned his attention to me, I signaled that I was thirsty and needed a drink.

I had some difficulty in putting the thought over; but presently he understood and a small jar of clear water was produced from somewhere about the shop.

After a good drink I felt greatly refreshed. Indicating that I wished to show them something, I pointed to the snowbank some distance away and to the spot where I had spent the night and where I had left my heavy coat and some of my thicker garments. But my attempt to lead them to the place proved futile, for the way was rough and rocky and they could make but little progress. They refused to permit me to go more than a few feet ahead of them.

Finally the problem was solved by the official, who used a queer communication disk and soon had a work car brought from somewhere; a car that was equipped with almost human-seeming devices.

This car went ahead of us, picking up the stones and other obstacles and throwing them aside, thus smoothing a way so that the Tovarts—I soon learned that these strange beings called themselves Tovarts—as we call ourselves people—were able to follow.

Soon we came to the clothing I had left, which I picked up and exhibited to my new found acquaintances. Then after much delay and difficulty I succeeded in assisting three of them—including Barbon and the official—to mount the snowdrift, where we found my parachute just as it had fallen.

The official would not allow us to take it up; I gathered from his gestures that he intended to have it photographed.

I hoped my plane might have found its way down the great funnel and into this snowdrift, though I knew that in falling from such a height it could not escape being hopelessly mangled and broken. Even thick snow could hardly be expected to save it.

The snowdrift seemed perfectly round in shape, as did the top of the funnel, high above; and I concluded that this drift was the result of some recent storm on the surface of the snowcap.

Snow falling or drifting through that opening would naturally fall straight down, since there was no wind, thus forming a circular deposit. The whole accumulation seemed to be melting and running away very rapidly.

After a short search my hopes were indeed realized. We found a deep, ragged hole at the bottom of which were to be seen small fragments that were unmistakable evidence that my plane was buried in the snow.

Gestures of Barbon and the official indicated that they proposed to have it reclaimed.

We returned to the outdoor shop, where I was loaded into one of the waiting cars and accompanied by Barbon carried away over the hill. Beyond this low hill the little world presented a very different aspect. The open spaces gave way to a populous city.

It was a city of wide, straight streets and regular squares; but the buildings, unlike our own, were not composed of solid walls and weatherproof roofs. Nor did they seem to be hotels and office buildings, but rather huge structures open to the world on all sides and at the top.

Some of the lower structures contained great collections of bottles and other glass containers of all sizes and colors.

Various colors of smoke and fumes arose on all sides, and strange mechanical devices, some at rest and some in motion, gave one the impression of a great outdoor laboratory.

EVERYWHERE were lifts and escalators, and numerous Tovarts were hurrying up and down. I saw no stairs; and I afterward learned that they had none; probably due to the fact that they were too poorly equipped physically to make use of such a device.

Very soon we came to a structure less unlike our own buildings than any I had ever seen. It was composed of several tiers of graceful stone arches, and there was an indefinable something about its impressive facade that seemed to suggest that it was a government institution.

We entered the building and leaving our cars on the ground floor and taking the lift, quickly ascended to one of the upper floors.

Here we halted in a small room open on two sides except for a low grating and overlooking the surrounding city.

All of our party except Barbon and the official took their leave. These two waited with an air of expectancy making in the meantime some little attempts to entertain me and at the same time to extract information.

Food was brought, and we partook of a most incongruous but to me most welcome meal. Each of us was provided with a small high table but no chair. My companions had no use for chairs. For them to be seated was a mere matter of settling the base of their shells on the floor and drawing their stubby legs up under their apron-like garments. So I stood while I ate.

My companions placed their auxiliaries on the tables; and these proficient little busybodies proceeded—to make use of an apt colloquialism—to feed their faces.

The food consisted of a small dish of some kind of porridge of unfamiliar taste and composition; some stewed green sprouts not unlike asparagus and a portion of baked fish; the latter discouragingly full of bones.

I was most interested in Barbon's auxiliary, for it seemed I fancied, more dextrous and proficient than the others'.

With one member it held the bowl a little up from the board. With two others it applied salt and some other seasoning; with yet a fourth, and while literally sitting on end, it ladled up the food in a gourd-like spoon and passed it to the waiting and capacious mouth. It did not empty it in, however, until it had been properly blown upon and tested for temperature!

With deft and nimble fingers wielding an assortment of implements, it cut up the sprouts and arranged them in dainty little morsels that seemed almost comically out of proportion to the size of the mouth for which they were prepared. And when it came to removing the bones from the fish, I witnessed a performance that for quickness and proficiency was indeed a revelation.

Not one or two but fully half a dozen of the organ's various processes joined in the work; and the bones were snatched out so quickly that I consciously envied my companion the service he was getting.

I was especially hungry and not a little nervous and flustered by all that I was experiencing and so found the numerous bones most troublesome and annoying. I suspect that my clumsy efforts seemed especially awkward

to those bright little eyes that always appeared to find time from their work to watch what I was doing. Did my lack of dexterity give these strange companions of mine a feeling of superiority? If so their decorous demeanor gave no evidence of it.

Now that I was getting a little used to them, they appeared to be quite likeable creatures. Their wide but agreeable mouths were capable of most engaging smiles, and their voices were a never-ending revelation of soul-thrilling grandeur.

I believe I should have reveled in the joy of hearing these entrancing voices had I known their possessors to be the most savage cannibals, who were planning to roast and eat me the next moment.

When the meal was over, the auxiliaries arranged the dishes and cutlery in an orderly way and then composed themselves on the edges of the tables.

It seemed almost a deprivation that they themselves had eaten nothing; although of course I knew they drew their sustenance from the main body, the same as any ordinary limb or other member.

In the streets below and in the neighboring buildings there was so much of interest that I scarcely knew what to look at first. But presently we were summoned by a messenger who was distinguished by a brilliant apron-like uniform and were ushered to the open top of the building and into the presence of a very dignified and august gathering.

PRESIDING over the assembly was a Tovart who was not unlike his fellows except that his front was draped with somewhat richer fabrics and his auxiliary was deposited on an ornate stand before him. My companions and the others carried theirs in retirement, partially concealed beneath their draperies.

I felt instinctively that I was in the presence of the chief dignitary of this strange community, and I only hoped that I might make a favorable impression.

The Horgost—for such was his official title—smiled with grave amusement when I was brought before him, and proceeded to question Barbon and the official in a way that signified the keenest interest. He even addressed one or two unintelligible questions to me.

In the midst of this conference a group of Tovarts arrived bearing, to my surprise, a large basket containing the battered but easily recognizable remains of the select library that had comprised my chief aerial cargo.

I was agreeably surprised to know that it had not been utterly destroyed, and that it should have been so quickly salvaged. I wondered what my hosts would make of it.

It immediately became the center of interest. Under the Horgost's directions volumes were taken out and passed to him and to all present.

Auxiliaries came forth from their retirement, and soon all were absorbed in critical examination of what to them were apparently very novel affairs.

At this moment came the clear, dominating note of a bell; the same, I suspect, that I had heard in the morning; now it seemed much closer by.

With one accord the whole assembly put down the books, retrieved their auxiliaries and faced in a single direction.

As the sound of the bell died away, there arose from those about me a wonderful and melodious chorus which I at once realized was the same as I had heard in the distance at daybreak. Now, heard at close quarters, it was if possible more enchanting and inspiring than before.

Scarcely daring to breathe lest I break the spell I stood listening, fascinated by the grandeur and beauty of it all. The creatures about me no longer seemed like living things, but rather like celestial and glorified musical instruments played by some great master.

If their lips formed words I was unable to distinguish them. I was only conscious of an overwhelming harmony that seemed to pervade my very being and to transform the universe.

Then, lapsing into silence, each individual rocking forward assumed a leaning posture; supporting himself from falling by his braced stiff arm. There they remained, absolutely silent and immovable; engaged as I guessed and later came to know, in meditation and prayer.

For a time I stood stock still, not knowing what to do, and fearing to move lest I create displeasure. But as time went on and no one seemed aware of my presence, I commenced to feel the strain of standing erect and I ventured to sit down quietly on the edge of the large basket containing the books.

I saw that all activity in the streets and everywhere had ceased. There was no longer the sound of machinery or other commotion, no movement anywhere.

I fell to considering the life of these strange beings. Where had they come from? How did they live? What was the source of their daylight, here under the great snow-cap?

And now that I had an opportunity to observe them in more detail, I noticed that a large sprinkling of individuals wore shells of lighter color, such as I had seen in the morning. I now realized that they were not grey but true mother-of-pearl color. Some were of exquisite beauty. These lighter colored ones seemed to be smaller than the others; I fancied their faces were a little more delicate of outline and their apron-like garments were of lighter hue and finer materials. I at once concluded they must be the females, and such proved to be the case.

What a harmless and inoffensive religion this was! I thought. Just some music, then a period of prayer and silent meditation. Later I was to learn that this was not the whole of their religion.

It was more than an hour before the bell again was struck and the silent figures once more became animated.

After the books had been examined and discussed at considerable length, the Horgost again turned his attention to me and there followed a colloquy which I judged from tones and gestures had to do with what was to become of me.

Apparently Barbon argued that I should be left in his keeping, while the official considered it his duty to take me in hand. It was evident that Barbon was a person of some importance, for he was listened to respectfully by all present. But at length his opinion was overruled and the Horgost made signs to me that I was to go with the official.

CHAPTER IV

The Story of the Tovarts

DESCENDING to the ground level we again mounted one of the low cars and returned to the central snowbank. I found that several machines had been at work and a lane had been cut through to the wreck of my plane, apparently by a melting process; and the machine, twisted and mangled almost beyond recognition, had been dragged out.

My companion took charge of further operations and the whole wreck was loaded onto a flat truck and carted away to the open-air shop where in the morning I had found Barbon and his co-worker.

After that I was taken to a sort of museum and spent the rest of the day there as one of the exhibits; while the official played showman and apparently explained all about me to all comers.

There were three more periods of worship, an evening meal and then to bed. High time for me; I felt that day had been a liberal slice of eternity.

But the matter of retirement presented complications; although the process was more than simple for mine host. At bedtime the Tovarts congregated at a placid little lake not far from the state building.

When we arrived there were a great many of them floating on the placid water, which was surrounded by low grassy banks less than a foot high.

They floated face upward; the heavy butts of their shells sinking so low that their fronts were in a horizontal position.

The manner of their entering the water was quite unique, and required the assistance of a piece of rope about a dozen feet long which was fastened to the ground perhaps three yards back from shore.

There were a number of these ropes placed at intervals all about the lake; and each Tovart on preparing to enter the water picked up the free end of one and, turning his back to the water, balanced on the edge of the bank. Then holding tightly to the rope he steadily tilted over backward until he was in a nearly horizontal position. At last he fell with a little "plop" and floated away.

Very peaceful and restful they looked floating in groups in the twilight, entirely motionless except when they bobbed a little on the waves sent out by some new arrival or thrust an arm overside to maneuver for position.

But when I came to the shore, a great many wide-awake little auxiliaries popped up to watch my actions.

Barbon was waiting with several others when we arrived. They and the official entered into a conference punctuated by many doubtful tones and dubious gestures. What to do with me was obviously a problem.

At length a decision was reached; Barbon producing his tiny telephone and carrying on a somewhat extended conversation while the rest waited in silence.

Results were almost immediate; within a few minutes a car arrived bearing a large, grotesquely painted imitation of an overgrown Tovart's shell.

It must be, I surmised, some sort of dummy shell for use as a theater prop or in a pageant. However, it was evident that it was now designed for my sleeping quarters. The apronlike front was removed, showing it to be but an empty shell. Having launched it, they invited me to enter.

I demurred. I indicated that I could spread my thick coat, which I still carried, on the grass and sleep there.

They would not hear of this. It was evidently unthinkable that any one should sleep anywhere except afloat; I had no choice save to make the best of it.

I laid my coat in the bottom of the shell and crawled in. They promptly shoved me off from shore, and I felt my craft bobbing on the tiny waves caused by their own retiring.

I was afraid to move lest I upset. But I was too tired to worry long over anything. Shortly I fell asleep. Next morning when I awoke the lake was deserted except for my own shell which was moored to the shore.

It was broad daylight; and away in the distance I could hear that marvelous morning hymn, and I realized that my companions had betaken themselves to morning services in the wide fields where I had first seen and heard them.

I was still so tired and sleepy that I lay down for another nap. Some time later I again awoke; this time to find that my official and Barbon had returned. With them were several other Tovarts I could not recognize as having seen before.

TOGETHER we all went to what seemed to be an open-air library, where a number of Tovarts were apparently engaged in the study of books, or what served as books; a sort of box-like device which when manipulated properly, became illuminated on one side revealing a space not unlike a page of a book.

Here too were my books; two or three attendants were engaged in repairing them.

And here I met Carbo who, I was told by many signs and gestures, would teach me how to read and speak the language of the Tovarts.

Carbo proved to be an able teacher, and at the same time an apt student; for I had scarcely begun to learn their language when these strange people decided that some of them at least ought to learn mine, in order to read my books, the numerous pictures in which had fired their imaginations and made them eager to know all about the far-off world from which I had come.

So very soon I was giving my forenoons to learning to read and my afternoons to teaching a class in English.

The selected class, Carbo, Barbon and a dozen others, learned very rapidly, in fact so much more rapidly than I that I was put to shame.

However, I had the advantage inasmuch as their characters were less complicated than ours and their grammatical construction less involved. Then too, the language having to do with the things all about us was therefore easily explained.

So it was not many weeks before we were conversing more or less understandingly, and I was commencing to learn the history and something of the daily lives of my hosts. I will tell their story; not bit by bit as I learned it but rather as it appeared when all the bits were pieced together.

For a great many centuries their ancestors had inhabited a small planet, approximately a thousand miles in diameter. Whether this world is one of the thousand or more

planetoids which our astronomers have discovered and catalogued I was not able to ascertain.

At any rate, this world was very cold and dark, affording only a narrow habitable zone along its equator.

There were various species of animals on land and fishes in the seas.

At first, according to their legends, they had lived semi-aquatic lives, drawing their sustenance largely from the sea; but later they had spread over the land and become in a measure agricultural. From agriculture they naturally progressed to science and industry.

In the course of time they discovered electricity and its uses and soon progressed to an investigation and understanding of light in its various phases and manifestations. This naturally led them to the study of atomic structures; and here they were able to advance one step further than our terrestrial scientists.

They were able to demonstrate what we had only surmised: namely, that all substances are but forms of energy, and all energy is but some form of light.

Having learned to generate power by breaking up of atoms of various substances—particularly hydrogen and oxygen, obtained from decomposing water—they were able to produce light and heat on a large scale.

By applying this light and heat to the surface of their little globe they were enabled gradually to enlarge the habitable area until it embraced nearly the whole surface. Thus given elbow room, so to speak, the inhabitants increased by leaps and bounds until at length they numbered several million.

Meanwhile they had been experimenting with balloons and various lighter-than-air conveyances, and had developed a world-wide air transportation system.

For their balloons they used a non-inflammable natural gas, somewhat akin, I imagine, to our own helium. The structures were built largely of iron, aluminum and gold of which metals they possessed large supplies.

Not only did they conquer their own atmosphere but they finally improved their balloon-like craft until by utilizing the impact force of light rays from the sun they were able to venture out in space miles beyond the most attenuated layer of air.

Then came the fatal event.

A large group of scientists of both sexes ventured out on a scientific research expedition a great many miles further from the home world than any one had previously gone.

One day—so their log book said—they saw their world suddenly expand and fly to pieces in a vast explosion.

Pieces great and small went hurtling through space in all directions while a great cloud formed where the globe had been. Presently even the cloud disintegrated and cleared away, leaving nothing but empty space.

THE space flyer robbed of the controlling gravitational pull of the mother world and driven by the impact of the sun's rays, drifted away into space.

Needless to say the voyagers were thrown into great consternation. For though they were comparatively safe for the moment, their food and other supplies were very limited and they foresaw only privation and ultimate death in the realms of infinite space. But presently they realized that they were being carried in a new direction and before long Earth appeared in the distance.

To them it seemed but a planet of ice and snow—no doubt it was winter time—and they were approaching from the direction of the polar star.

In great fear they discharged their rockets and operated their other gravity-resisting devices to keep them from falling into the earth.

Though they were unable to maintain any stationary position they were able to so far retard the speed of their progress that when they entered the Earth's atmosphere their velocity was not great enough to cause any great heat of friction. But the Earth's atmosphere proved too light to support them and their downward flight was so precipitous that they struck the ground with a terrific shock.

Had it not been that they landed in snow, probably all would have been destroyed. As it was the flying machine was completely wrecked and several of the voyagers were killed.

Happily they had two machines for converting water into power for light and heat, and these were quite uninjured.

With energy born of desperation they set to work to melt their way through the great icecap, using the resultant water as fuel supply to melt still more ice.

As time went on and they burrowed deeper and deeper into the living ice their food supplies were gradually exhausted, although they supplemented them as far as possible with nitrates extracted from the air.

At length they reached solid ground; but in such desperate condition of want that they would have starved to death had they not providentially come upon the cold-storage carcasses of two gigantic prehistoric mastodons, such as hunters and explorers often find frozen in the eternal snows of Siberia.*

Toward these the Tovarts showed no squeamishness. They accepted their find as a special dispensation of divine providence and thus fortified set to work with renewed energy to conquer Nature's fastness.

Excavating on all sides, they soon came upon a lead of fertile soil and presently had enough uncovered to provide a fair garden tract.

They had saved a few seeds from the last remnants of their food, and these they planted and tended with great care, concentrating their mechanical and scientific abilities on producing artificial sunlight for this all-important venture.

This was not entirely a new idea with them, for something approaching it had long been practiced on their home world. So they were not without experience.

Their efforts proved successful; and soon they were raising a substantial supply of vegetables. Of domestic animals they had none; but they did have three very small ornamental fishes, somewhat like our gold fish. These had been a part of the scientific equipment of the original expedition, and had been miraculously preserved.

With characteristic optimism the Tovarts prepared a suitable pond and set to work to propagate and develop these tiny creatures by selective breeding until they finally secured two or three varieties of quite large edible fish.

Since their flying machine had been completely wrecked and their supply of gas lost, they had little hope of ever

*A woman restaurant keeper was recently arrested in Siberia for serving steaks from such an animal on her boarding table.

being able to leave the earth. Moreover, since their native world had been destroyed, they knew of no better world to go to; so they were quite content to stay where they were.

They had, of course, brought with them their religion which they were able to preserve; but their knowledge, the arts and sciences, suffered marked deterioration as is always the case with pioneer settlers.

True, this group had been composed of scientists of rare ability. But for the most part these had been specialists in a few allied lines, and there were many important branches of learning in which no one of the party had been particularly trained. So it was impossible to determine just what proportion of the little world's culture had actually survived.

And so the little colony—perhaps the most unique settlement in all history—had survived and to some extent prospered for more than three centuries before my arrival.

They had enlarged their little crater until it was a mile or more in diameter; had developed surface and subterranean shafts for several miles horizontally and hundreds of feet vertically in order to find and develop mineral deposits and natural resources of all kinds. They had perfected heating plants to provide a comfortable and constant temperature, and lighting effects that scarcely differed perceptibly from sunlight effects.

They had grown from a stranded colony of little more than a score of individuals to a prosperous and cultured community of several thousand.

They gave, it seemed to me, a little too much time to their religion. Each day there were five periods of devotion, each one of a little more than an hour's duration. And the first two days of each month—they divided their years into months of twenty days each—were given over almost exclusively to religious affairs.

However, I decided that these regular hours of inactivity, while they interfered grievously with industry, still had their compensation in so far as they provided restful relaxation and time for thought and meditation; things that in themselves make for progress and efficiency.

CHAPTER V

Condemned!

WHEN I was able to tell them, and they were able to read for themselves, about the real world that lay beyond the ice fields, they evinced a keen and intelligent interest; and some of them expressed a desire to see it all. But no one so far as I know ever suggested the possibility or desirability of pulling up stakes and removing to regions where there was no necessity for manufactured heat and sunshine. In fact, they seemed entirely content to live where they were.

Indeed, their place of residence had many points of advantage. They were entirely protected from storms and weather conditions of all kinds. They had an unfailing supply of water for all purposes in the ice about them. They were free from the wars, commercial rivalries and political intrigues of seemingly more favored communities.

In Barbon I found a staunch friend. He was always interested in my welfare and thoughtful for my comfort.

We held long conferences at his little out-of-town shop. He had chosen this remote spot and built his shop here in order that he might think about and work on his intricate inventions free from the noises and other distractions of the populous district.

He and a number of other Tovarts became greatly interested in my wrecked airplane; and when I expressed a desire to repair and rebuild it they entered into the project with enthusiasm.

From the start we were somewhat handicapped by the lack of suitable materials: aluminum, which they derived from clay, being the only metal of which they possessed an adequate supply.

We were able to secure a little iron from a few relics that had been preserved from the ancient space flyer; and by using all our resources very judiciously, we were able to make gratifying progress.

Barbon was an inventor and designer of some fame and prominence; and his mechanical knowledge proved invaluable in rebuilding and reconditioning the wreck. Since we had no gasoline or petroleum of any sort there could be little hope of operating the motors; but as a mechanical model the plane would still be useful.

I had high hopes that I would be able to interest the community in aviation to such an extent that they would bring their own knowledge of motive power to bear on the subject and that ultimately some device would be worked out to enable me to fly back to my own world.

I believed that their water-disintegrating device could be used as a source of power.

I had a faint recollection of having read somewhere that there was enough energy in a cubic metre, or was it litre, of water to drive a ship across the ocean.

One day Barbon invited me to go with him to see the holy temple; the official seat of the state religion.

For some time I had been curious to see this establishment so I accepted with alacrity.

As we were coming to the place, my companion explained that once a year elaborate ceremonies took place here: and that during the year it was the shrine of worshippers who came to ask some special favor of the deity, whose abode it was supposed to be.

Some divine intuition had directed early priests of the colony to the spot, he said, and they had there built a small temple as nearly as possible a perfect replica of the All-holy temple of their native planet. A deep pit was a part of the development; and in making this excavation they had suddenly liberated the actual voice of the deity; since that day his breath had never ceased to issue from the orifice in great volume.

I thought I detected in Barbon's wonderful voice a note of whimsical irony as he related these things; and I concluded that he might not be as spiritually-minded as the rest of his people.

When we arrived at the temple I found it to be like all the rest of their buildings, a mere skeleton; a great, open-air, pagoda-like building.

Upon approaching the deep pit I heard a deep whistling sound as of the escaping of a large volume of gas.

My companion cautioned me against going too near to the opening because, he explained, none might breathe the breath of the deity and still live on as a mortal being.

He smiled somewhat whimsically as he warned me, but his voice carried conviction.

I did, however, venture close enough to get a whiff of

the so-called breath, and instantly recognized it as ordinary natural gas; the commercial illuminating gas in general use in many parts of the world.

"Have you ever tried to burn this substance?" I asked.

"As one of the chief tenets of our religion it is forbidden to bring fire in any form within the confines of the sacred enclosure." He indicated a low fence surrounding the ground. "But we do know the substance is fatal, because certain classes of animals that have sinned against divine law are executed by being lowered down into the hole.

"We are especially careful about doing or saying anything that the priests may interpret as sacrilege," he explained a bit bitterly.

ON the way home Barbon described in detail the yearly ceremonies which took place at the temple, and explained how the priests were able to interpret the voice of the deity, and how they were selected and supported by the community.

That night and for several days thereafter I thought intensively about that escaping gas. I knew in a general way that gasoline could be extracted from natural illuminating gas, and I saw in this possibility a bare chance of securing fuel for my airplane.

After a somewhat prolonged search I found a detailed account of the process in a book on commercial chemistry in Professor Pillsbury's ideal library.

I dared not reveal my hopes to the Tovarts, however, for fear of being deemed guilty of heretical sacrilege; and now I knew that such a crime was no trifling matter.

At length I decided to tell Barbon what I had in mind, trusting to his friendship to keep my secret and possibly to give me aid.

I approached the subject cautiously.

"Would it be permissible," I asked, "to make any scientific experiments with the divine breath at the temple?

"You know," I added hastily, "I wouldn't want to suggest anything that would in any way impair your faith in your religion, but I have a theory I thought might interest you."

"As for my religion," he told me, "you need have no fear; I am primarily an inventor and a scientist. Real knowledge and superstition have never mixed very freely, but I presume it is up to the followers of each to give and take a little.

"You may speak freely of anything you have in mind, and I will promise to see it from a scientific viewpoint. However, I must warn you that the priests are in power and you must be very careful whom you take into your confidence."

So I told him what I conceived to be the true nature of the "divine breath," and explained its manifold uses. Then I showed him the book describing the extraction of gasoline from natural gas and revealed my hope that I could thus get fuel for my motor.

"It sounds reasonable," he said. "We will see what can be done; but we must observe the utmost secrecy."

The next day he told me that he had learned of a pipe that had been laid to convey the gas to a hospital, to be used in ceremonies at the death of patients dying in the institution. The hospital had long since been moved; but the pipe still lay in the ground. It passed near his shop . . .

By this time my class in English had grown to nearly three score members. One pupil, a young priest, displayed special aptitude. He was soon reading the classics and the Bible with fair understanding.

"I am especially interested in your Bible and other religious works," he told me privately one day. "I find there are many points of similarity between your theology and ours. Tell me. Is this Bible still the basis for divine worship in your country?"

"Yes," I assured him. "It forms the basis for practically all the religions in the more progressive countries.

"But," I qualified, "there are a great many interpretations of certain parts of the book, and a great many of the denominations and sects have beliefs and practices quite different from what you might expect from reading the book."

A few days later he showed me a manuscript.

"This," he explained, "is a translation of the first chapter of the Bible. I want to give it to my superior at the temple. I have brought it to you to read and correct for me, if you will."

I found it to be quite smoothly written and fairly correct in detail.

Next day I returned it with a few suggestions for minor changes and a courteous compliment on the excellence of the work.

The following day a group of officers appeared and haled me before the Horgost. They were very stern and insistent, but would give me no inkling as to why I was wanted.

I found the ruler in his executive offices, looking very grave and surrounded by equally grave priests, all clad in full clerical regalia.

"The charge is," accused the head priest, "that this creature believes and teaches a heresy!

"We of course know, through divine revelation, that we, the Tovarts, are created with all the physical attributes of our divine creator. We are made in his image. Now one can see at a glance what a disparity there is between a normal physique and the altogether undignified form of this inferior being. Yet he and his books are poisoning the minds of our people with the unqualified statement that *his* kind are created in the image of the creator of all things!"

HE read from the translation that I had corrected.

"Did you read and correct this translation?" asked the Horgost. I admitted that I had done so.

"Take him to Borg," commanded the ruler.

I found that Borg was a prison; roofless and walless, except for a metal grating, but nevertheless a prison. And here, with several other prisoners, I was destined to be incarcerated for many days. I was told that my fate would be determined at the time of the annual ceremonies, at which time I would be taken to the temple, and the high priest would interpret the voice of the deity regarding my disposition.

A number of my new acquaintances came to see me from time to time, and in the presence of the guard were allowed to talk about anything except my religion. They told me they were going on with the study of English in order to make the most of whatever of science and cultural knowledge was contained in the collection of books I had brought; but that a committee had been appointed

to ferret out and destroy everything that could be considered of a religious nature.

At first the guard was very attentive; but after a few days when he found that I showed no inclination to talk of the forbidden subject, he paid little attention.

When Barbon called he was especially discreet in his conversation.

"I am working an hour or two every day on the flyer," he said. "I am making some progress in developing a motor fuel which I find is described in one of your books."

The next time he came, seeing that the guard had relaxed his vigilance, he talked more freely; saying that he had actually produced a bucketful of what he felt confident was pure gasoline. At least it burned very explosively, as I had told him gasoline should.

I asked him what the chief priest meant to do with me.

"I may as well tell you," he admitted, "that you haven't a chance in the world, unless we can outwit the old fools. He never has any mercy on anyone. Not a single religious prisoner has escaped death during the eleven years he has been interpreting the divine voice. I would go tonight and murder the scoundrel, if I thought I could escape detection. But don't be discouraged," he finished hopefully. "We will think out some plan."

During the next few weeks I did nothing but think out plans. It still lacked a little more than a month until the yearly temple ceremonies.

At last, with Barbon's help, I worked out a scheme which we hoped might be successful.

One day Barbon told me with much bitterness that the chief priest had appeared before the advisory assembly and suggested that my airplane be removed from the shop where we had rebuilt it, and where he, Barbon, was still working on it. It was agreed that it be placed in the great public museum with a dummy at the controls clothed in my great aviation coat which was also at the shop, and perhaps the rest of my aviator's clothing which I was still wearing.

After the verdict rendered at the temple during the forthcoming annual ceremonies, if it so chanced that I was permitted to survive, he deemed it fitting that I should be provided with improvised garments of local fabrics, in order that my real costume should be preserved for exhibit.

Barbon, who had been present in order to explain the details of his recently perfected inventions, had detected in this move a deliberate plot to rob him of an opportunity to study and experiment with the plane and possibly to demonstrate that the race of which I was a member really possessed something of material value.

Relying on the strength of his own position as a useful inventor and a great economic asset to the community, my friend had risked the displeasure of the powerful divine and had asked that the machine be left in his keeping until he had mastered certain mechanical principles peculiar to its design.

"He is afraid that scientific research may sometime undermine some of his old superstitions, which are the basis of his power over our minds. So he consistently does everything he can to retard and discourage all scientific activities," interpolated Barbon angrily. "As if he didn't know that if it were not for our science, we could not exist here in this hole for a single year.

"I am very discreet; but I think he would have tried to dispose of me long ago had he not been afraid I would fight him with some scientific creation that might prove his undoing."

The fact that the assembly failed to act upon the high priest's recommendation was proof of the high esteem in which Barbon was held; this at least was some small consolation to me.

CHAPTER VI

The Break for Freedom

AT length the day arrived for the eventful ceremonials. Late in the evening I was taken to the temple, to be disposed of as the temple deity should see fit.

I had little doubt as to what the verdict would be, since it was to be delivered through the medium of the high priest; but I did have some faith in my own patent cigarette lighter and a small roll of fiber soaked in gasoline which Barbon had handed me an hour before my departure from the prison.

Though the temple grounds were dark, the open spaces of the structure itself were lighted with a cluster of blue lights high up overhead that cast a weird religious glow over the interior and the little court in front where gaped the ominous mouth of the sacred pit.

The high priest himself, his front resplendent in religious robes and his auxiliary decorated as if for a prize-winning exposition and ensconced on a pulpit-like stand, occupied an exalted position in the front of the temple.

Numerous priests moved slowly about, engaged in various tasks of spiritual significance; while the lay members of the great assembly packed the rest of the temple and overflowed the grounds and massed themselves in solid ranks as far as my eyes could penetrate the darkness on either hand.

An area had been reserved on the right for a group of official dignitaries, and one on the left for me and my guard.

When I was arraigned before him, the priest announced that I had been guilty of believing in and teaching a doctrine which to mortal minds seemed detrimental to the highest spiritual development; but that it was not deemed to be within the province of mortals to judge offenses against the deity. So it had been left to the deity himself to proclaim whether or not I was an offense to his being, and what should be the attitude of his people toward me.

The priest's language was most impressive; and his great voice reverberated in measured intonations that were like the exquisite notes of a dozen musical instruments rolled into one.

It was a sound so melodious, so inspiring, as it soared aloft to the soft blue lights and spread out in the darkness to be echoed back by the assenting murmurs of the vast multitude of the congregation, that it seemed unthinkable that it presaged any evil or injustice to me.

But as he ceased speaking and, gathering up his auxiliary, turned slowly about to face the oracle, the deep, ominous voice from the depths brought my mind back with a rude jerk to the stern reality of my danger.

Very slowly, and with all the pomp and dignity conceivably attainable in a form and gait so incongruous and clumsy, he approached the rim of the open orifice.

Standing on the very brink, he ceremoniously raised

his auxiliary with his decorated, bespangled, but to my eyes ungainly arm, and held it far out over the opening; its swanlike neck falling in a graceful curve and looping up under the folds of the rich robes.

There he stood, like some perverted demon of ignorance, his back with its thick shell turned toward the light, facing out into the darkness, I felt his attitude was not only physical but mental.

Meanwhile the auxiliary cocked an ear in a listening attitude toward the bottom of the pit.

The great congregation held its breath in sympathy with the priest, who must refrain from breathing the breath of the deity.

All was still, save for the hoarse voice that welled up from the throat of the gas vent far below.

I NOTICED that the ribbon and pendant-like trappings of the auxiliary stood straight up and lashed about as though in a swift rush of wind. Since the opening was easily five yards wide, I marveled at the vast quantity of gas that must be escaping to cause such a hurrying draft.

After a long minute the listener turned away. As he moved slowly and grandly back to his station, he was gasping for breath.

On his little table there was a reference book; this the auxiliary picked up and deftly manipulated, holding it so that the dim light would facilitate reading.

It was, I knew, a "translation" and "key" to the pronouncements of the deity; a supposedly inspired work intelligible only to the high priest and two or three of his most learned assistants.

While he read, his one arm performed a rhythmic series of gesticulations that seemed to add appreciably to the solemnity of the occasion.

Presently he seemed satisfied with his interpretation. He turned his attention to his waiting hearers.

"I find the verdict of our deity clear and explicit," he announced. "The substance of the pronouncement is that the further existence of this strangely shaped, half-human prisoner is distasteful to the all-powerful one; and that he must be annihilated forthwith."

For a moment he stood waiting, as if giving time for his message to be understood and considered. Then—"And we who are but the servants of our maker, have no choice but to conform to his wishes. Shall we now proceed to ascertain the divine will as to the manner of the annihilation?"

He paused for an answer. From here and there among the audience came murmurs of assent; but I fancied they were only half-hearted.

"It is well. Our minds are as one," the high priest intoned. He turned again toward the oracle.

My eye wandering a moment from his slow, stately progress, picked out a derrick-like contrivance standing in the gloom some distance beyond the pit. Barbon had told me it was used to lower unfortunate offenders into the depths.

I had little doubt as to how the priest would interpret the deity's next message.

I was sick at heart. But self-preservation is Nature's first law, and I had no intention of tamely submitting to the will of this impressive fakir.

Now that my worst fears had been realised, and there could be no further doubts as to the enemy's intentions or hope of my surviving without open hostilities, I decided that no time should be lost.

Looking stealthily about me, I saw that all eyes, even those of my guard, were on the lone actor.

Stealthily I drew the patent lighter from my pocket, and brought out the saturated roll of fabric.

Meanwhile the priest had progressed to his former station on the brink of the pit, and was holding his auxiliary over it for the "Voice."

I ran to the table, lighting my torch as I ran. Springing on top of the table, waved the flaring torch aloft and shouted boldly:

"He is an impostor! He is deceiving you! Look. Your god will destroy him!"

With a dramatic flourish I hurled the now thoroughly ignited bundle fairly into the mouth of the gaping chasm.

Instantly there was a blinding flash, followed by a terrific explosion.

I was thrown violently from the table and landed in a heap among the civil officers' delegation. A great flare of flame, several times higher than the temple was roaring skyward and illuminating all about with a glowing red light.

THE high priest lay on the flagstone beside the hurrying flames, where he had toppled over backward.

His face and robes were charred and black, and his shell was the color of smoke.

There was no sign of his auxiliary; but the major portion of its long, slim neck stretched out on the ground.

A great cry that was like the crescendo of some masterly musical composition; a note of horror, surprise and supplication all in one, went up from the crowd. Auxiliaries were held aloft as high as arms could reach, in order to see better what was happening at the pit.

One long, inclusive look was enough for me. I slid down from the platform and ran, apparently unnoticed, through the crowd and out into a patch of shrubbery in the direction of Barbon's shop. Except for the shadows of the bushes all was as light as day.

Without a backward look I ran at top speed and arrived at Barbon's shop in an exhausted condition.

My friend was there, waiting for me. He had seen the flare of the column of fire at the temple, and knew that so far at least my plan had worked. His telephone was before him.

"You must make a quick getaway," he said with evident anxiety, although his marvelous voice was as melodious and measured as ever.

"They are already searching for you. Messages are being sent out for every one to be on the lookout for you, and they are in such a state of excitement that I suspect you would be given short shift if they once find you. I think the plane is all ready. But I didn't dare start it today, for fear of attracting attention."

"But," I expostulated, "you should not be here! If we start the motor they will be here in a few minutes, and they will know you have helped me."

"I shall say that you overcame me by force and took the plane," Barbon argued with bland composure. "I shall be lying stunned beside my bench. Make haste! Make haste!"

(*Continued on page 87*)

THE POWER SATELLITE

By **R. F. Starzl**

(Illustration by Paul)

Three bodies struck the Earthman and bore him down. They dragged him across the jagged edged rocks until a fold of his suit caught.

THE POWER SATELLITE

by the author of "The Metal Moon," "Twentieth Century Medusa," etc.

ANTON WAITE, special diplomatic representative of the Terrestrial government, felt the subtle menace of it; that ghastly danger which threatened the peace of the entire solar system. He had arrived on the controversial little satellite of Goddard,* Neptune's sole moon, on a supply ship only a few hours before. Now, in the huge vaulted underground chamber where a thousand persons—a fifth of the satellite's entire population—dined leisurely, he looked around curiously.

At his secluded little table, screened by one of the huge supporting pillars, Waite watched the scene, in many respects a cross-section of the interplanetary life of that advanced day. He saw Terrestrials, brawny, efficient engineers; mine foremen, technical experts. Although their clothing, in these rest hours, was of excellent, iridescent fiber, it suggested in cut the unionalls of their working hours. There were also Martians—descendents of Earth's colonies on the red planet—hawk-faced, usually handsome, with dark, curled hair, pink skin, in their native clothing that suggested military uniforms. And a sprinkling of Venusians, grave, pale as alabaster, the men in long, flowing robes. Only the women of all three racial branches were similarly gowned, wearing long, brightly colored drapery, and flitting about like animated jewels.

Music from a concealed source filled the hall, and a play of living colors over the walls, the ceiling, and the white stone floor completed the harmony.

Waite's rugged, young, and not unhandsome face was grave as he thought that only in men's hearts there was no harmony, but rankling suspicion. He was a splendid specimen of a Terrestrial man, of slightly more than average stature. Even in repose, and more so when he moved, he suggested leashed force. He would need all he had, he thought, as he considered his difficult and dangerous mission. At this moment he was conscious of a faint perfume, and a voice back of his chair spoke:-

"Please! Pretend you know me!"

With a start Waite looked up at the girl. She was, he saw, a Martian of rare beauty. Her features, with all their imperiousness, were small and feminine. Like all Martians, she was a little smaller than a Terrestrial of her sex. The soft, rich material of her clothing clung to a body that was slim and yet exquisitely rounded. Her pink arms and legs were partially bared, and her feet were thrust into tiny slippers that concealed only her toes, revealing high-arched insteps. A singer, or dancer, Waite decided, come to this remote port under the inducement of a high salary.

"Call me Glyda," the girl continued breathlessly, sitting down on a stool which she drew to the table. "Talk to me. I'm in a ver' bad mess."

R. F. STARZL

THE lack of a super-powerful fuel is perhaps the greatest obstacle to space travel today. It would be rather ironic therefore, if after centuries of trying to find that fuel on earth, the first men to brave interplanetary space would find just what they want on another world.

And such a probability exists. For on other worlds the differing conditions may have transformed the elements in a manner to produce chemical compounds unknown on earth.

If such an invaluable thing as Mr. Starzl's "catalyte" were found, it would revolutionize our life; but on the other hand it would create a mad series of wars, schemes, plots and chicanery to gain the coveted substance.

In this story, Mr. Starzl takes us to far-off Neptune's moon where in an exciting story we see the grim drama for power played out to its very finish.

"Glad to do that," Waite grinned. "Shall I order some Venus pears for you?"

"Please!" And Waite gave the order through the table microphone. In a moment the fruit appeared through an opening in the table's center, and the girl began to eat.

Waite watched her speculatively. He wondered if she were the spy of some hostile power. If so, she had lost no time. Her approach, though not exactly new, was certainly effective.

Setting small, white teeth into the fruit, Glyda smiled. Her eyes, beneath their long lashes, were a brilliant, amethystine green. Her head was small, well shaped, and her dark, curled hair was held in place by an inexpensive fillet of gold, long since artificially produced by the atomic process and therefore cheap. He decided that he might like this girl even if she were a spy. Waite had walked perilous paths before, and had unmasked many a pitfall. But never had an adversary been so attractive so he smiled at her.

She responded, but there was a trace of pathos in that response and the look in her eyes was that of a hunted creature.

"You have just come on the supply ship from Earth?" she asked.

"How do you know that?"

"I heard *him* say so. Snaide."

"Snaide?"

"The Martian Authorized Receiver. I hate him!"

"Snaide told you about me: You hate Snaide? That doesn't make much sense."

"It does. Don't look now. I'll tell you where he is: Under the second sun disc. Take this."

*Named after the famous American pioneer of rocket ships. Ancient astronomical works contemporary with Goddard refer to this body as Triton.

From a small pouch at her girdle she took a then familiar toy—a curved quartz rod with lenticular ends. By looking into one of the ends, due to a peculiar property of quartz, one could observe what was going on behind one's back. Waite held the fragile bit of glass to his eye and scanned the room around him as with a periscope. He located Snaide at once, watched him with interest.

The Martian was rather typical of the ruling class of that planet when they begin to go to seed. His skin was red, verging on purple instead of a healthy pink. His body was gross, forced into a tunic of military cut which was meant for a much slimmer man. His thick black hair was cut short, standing up stiffly. His large, hooked nose, deep-set eyes, and full lower lip all betrayed unscrupulousness, lust for power, impatience with opposition. And now Snaide was obviously in a black mood.

"He seems pretty sore about something," Waite remarked, handing back the quartz. "So he's the Authorized Receiver?"

"Yes, and I hate him!" Glyda declared vehemently. "He—well—he wants me. Ever since—they brought me here, he has wanted me and now he says he will wait no longer!"

WATCHING the flame and the shadows of fear in her eyes, Waite thought she was either a very good actress or she was telling the truth.

"But, Miss—uh—Glyda! You could appeal to the Factor. This may be a bit off civilized trails, but it's subject to law—the Interplanetary Statutes. Didn't you know that?"

Again that hunted look.

"Yes, but—I will have to trust you! You will help me if I tell you everything. Snaide seems disturbed by your coming. A man whom Snaide fears is one who could help me. It's this—"

"Stop!" Waite snapped. "Don't say a word. There's a photobeam on you!"

Glyda's fingers fluttered to her throat.

"Say nothing. Take your hands down. I want to see."

There it was. On the slender column of her neck was a tiny speck of light, almost too small to be noticed. But both of them knew that it was the termination of a tiny beam transmitted by some spy in that room, and that a telescope, with a photoelectric cell at its focus, was directed on that spot of light. The vibrations of Glyda's throat, quivering over that light beam, would be easily heard by the eavesdroppers.

"We're in for it, Glyda, if they heard much. We can't talk here. Come. Let's get out."

"No, wait! Oh, he's coming! Have you ever been on Mars? Say you met me at the Montessor Theater!"

Snaide was striding across the large open space at the center of the hall, paying scant attention to the deferential greetings of acquaintances. He was coming toward them. Waite groaned inwardly. Knowing the Martian temperament, he expected a fight. Public attention would be directed to him, and he would immediately incur the enmity of a man who could be useful to him.

But the Martian had evidently decided to avoid trouble. He bowed civilly, acknowledging the introduction.

"Glyda told me, Mister Waite, that she knew you on Mars. I heard that you had just arrived. That catalyte matter, I presume?"

Waite was taken aback. He did not miss the sharp scrutiny that accompanied Snaide's formal politeness, nor the underlying note of triumph. It was natural that his arrival should be noted, but his purpose! That was disconcerting.

"You wonder how I know that?" The Martian's lips drew back in a grin. "My dear sir, what else would you be here for? The man who negotiated the Mercurian gum deal, and a dozen other coups! I trust with your aid we shall soon solve the mystery. And what a charming companion!" He laid a soft, red hand on Glyda's arm, and she shrank perceptibly, though she smiled.

"I confess, sir, I envy you," Snaide went on with elaborate affability. "Women are not ordinarily indifferent to me, but—"

He looked rueful, bowed, and turned to stride away. Glyda shivered.

"I'm afraid. Let's go outside. You must do something for me. After that, ask anything of me. But you must help. Will you?"

Looking into her face, Waite did something he would have found hard to justify.

"I will help you. Come outside."

Like all human habitations on Goddard, the great hall had been cut in the solid rock far beneath the surface of the satellite. For, although Goddard has a thin atmosphere, it is so deficient in oxygen that no human being could live in it. The little interplanetary mining colony lived, therefore, in a honeycomb-like structure, far underground, and the atmosphere was artificially maintained.

Waite and the girl found themselves in one of the main galleries, which were wide and well-lighted.

"Where can we talk?"

"Not here," Glyda murmured. "This way."

She led him a distance of several hundred yards, then up a lateral gallery. Here there were fewer people. They turned again, and it seemed as if they had suddenly been transported into some Terrestrial park at twilight.

It was a real park, deep down in the bowels of Goddard, a huge, vaulted room in which familiar Terrestrial vegetation grew under favorable conditions. The great actinic lights had been turned off, and a faint perfume of soil and growing flowers filled the air.

Glyda led the way to a bench, and Waite sat down beside her. As he did so several figures entered the park. Lovers, perhaps? Just then it was credible.

But a moment later there was a crunching of feet on gravel close by, and some instinct made Waite whirl and leap to one side.

It was too late. Shadows were all around them. Glyda cried out and half rose to her feet. Something thudded against Waite's head. He was in the midst of a swirl of figures, of fighting, panting men.

Waite felt for the ray-tube in its clip at his belt, but it was gone.

"That woman!" he exclaimed angrily to himself as he struggled against unconsciousness. "What a fool—to fall for that old trick!" He landed a blow and was rewarded by a grunt of pain. His elbows thumped solidly against something.

"Let him have it! Don't let him call!" came a snarl at his ear. A heavy blow almost paralyzed his shoulder.

It had barely missed his head. Waite was getting tired fast, and his head never had entirely cleared. In the dim light he could not see his attackers, nor how many of them there were.

A blinding flood of pain as something struck his head again, and Waite felt his knees give under him.

"Finish him quick!" howled the unknown. And Waite, still fighting automatically, was nearly past caring.

Then it seemed to him that the fury of conflict redoubled, and lying neglected on the ground he was no longer conscious of blows raining upon him. At last blackness engulfed him, and he knew nothing at all.

WHEN Waite returned to consciousness and suffering he saw that he was in a small, oblong office, hewn, like everything else in the city of Goddard, out of solid rock. The walls were hung with astronomical charts and tables. Waite was lying on a cot, and from where he lay he could see, still blurred and uncertain, the green, red and white comet brassard of the I.F.P., the Interplanetary Flying Police. With a groan of gratitude and pain he sank back and closed his eyes.

His groan aroused someone. There were heavy footsteps that came from an adjoining room and stopped beside Waite's bed.

"Be glad you can groan!" said a hearty voice with a laugh in it. "That bop on the head nearly split your skull."

Waite looked for the speaker. Slowly the blurry outlines of a genial full face came into the field of vision. A pleasant face under a crop of stiff, sandy hair, topped by a little round skullcap of woven metal—the uniform headgear of the I.F.P. The officer was dressed in regular uniform, except that he did not have on the heavy service belt with its load of instruments and weapons.

Waite managed a wry grin.

"Knock me again, fellow!" he said, his tongue thick and clumsy in his mouth. "I got taken in by an old and easy trick. If you hadn't come along I'd be just a pile of dust in some refuse burner. It was you, wasn't it? How many of you were there?"

"Just me and Belts." He shouted. "Hey, Belts, drop them things and come in here for a minute!"

Belts came in a moment. He was smaller, slighter than his companion, whose name was Hackett. He had dark hair and a thin, studious face. In one sunburnt hand he was holding the tiny coils and lenses out of a ray-tube which he had been checking over. He smiled warmly.

"Glad to see you coming around, Mister Waite," he said. "It was just luck that we came along during the fight. Only sorry we couldn't save the girl."

"Save the girl? What d'ye mean?"

"Why," Belts said, "they weren't hurting the girl, just holding her. So Hackett and I piled into the fight around you. We used our knobbed clubs, and soon cleared a little room. Then the others grabbed the girl and beat it.

Relief, gratitude, and then doubt assailed Waite. He had assumed that Glyda had acted as decoy for Snaide, or for some other plotters who did not care to have the catalyte matter investigated. Waite was mildly astonished that it should matter to him whether or not Glyda were absolved from treachery. But immediately a new fear tortured him. Glyda was in the hands of his enemies. Her plight might be serious. With stakes of interplanetary importance depending on his catalyte mission, Waite could not deviate from his duty in order to search for the girl.

And at the same time he did not dare to call on the local authorities for help. They might be aligned with his enemies. There was one crumb of encouragement. If Snaide had been concerned in that attack, then her position was not entirely hopeless. Snaide would protect her against everyone but himself.

Waite groaned again as he sat up and dropped his feet to the floor.

"You men from the Earth headquarters?" he asked.

"From Denver," Hackett replied. "You know, of course, that the I.F.P. is really divided into three branches that cooperate? But ordinarily the men from each planet always work together."

"And lucky for me!" Waite exclaimed, gingerly feeling his scalp. "And now I wonder if I can count on a little help from you. Unofficially, of course. And I'm going to make a few things clear to you. I don't much like the idea of playing a lone hand when all my opponents are tipped off in advance. Now, tell me this, do you know what I'm here for?"

"Well," Hackett said uncertainly, "I heard down at the mines that you were sent here to check up on the catalyte shortage."

Waite grimaced.

"And they told me at Cape Town that my investigation must be made in the greatest secrecy!" He limped to the table and picked up a tiny cylinder out of Belts' ray-tube, that the latter had laid down. Unscrewing the cap he poured out a few grains of grayish powder, into the palm of one hand. It felt warm, as though possessed of a life of its own.

"Catalyte!" he exclaimed, fixing his eyes on the little heap in his palm. "The very life of modern civilization. Without it no rocket ship could ply the space lanes; no ray weapon could function. The stuff that changes iron into platinum, or lead into gold! Look at it, men! Atoms that peel electrons as easily as you take off your undershirt. The race that has the catalyte has power; the one that has none is at the other's mercy!"

Carefully he put the potent element back into its capsule, which was an effective insulator and capable of protecting the user against burns.

"We're anxious to help," Belts said quietly.

"We'll have to work very smoothly," Waite continued. "Naturally all three of the owning planets are very touchy about this. Goddard, this one mine, is the solar system's only source of catalyte. According to the treaty, each planet is entitled to an equal share. Anything smacking of interference—anything like the intervention of force, would mean war!

"Yet, the fact remains that the output of catalyte has dropped, though as much ore as ever is delivered to the refinery. Someone is getting that missing catalyte! It isn't Earth. Could it be Mars? Could it be Venus? Each suspects the other, and all are only awaiting some suspicious movement, some tactless word. The human race is still pretty savage, men. Unless we can find out who's getting that catalyte, and return it for an honest division, there'll be war!"

The other two nodded grimly.

"Yes," contributed Belts. "And there's another angle. Somebody wants you to fail! Now you lie down, Mister Waite, and get some sleep. We'll see to it nobody slips a knife into you, and when you're ready to start we'll sort of keep an eye on you."

CHAPTER II

Into the Fire

THE rare and indispensable element, catalyte, had been created millions of years before the first faint premonition of life stirred the primeval Terrestrial ooze. In fact, Earth itself was still only a swirl of vapor. Flaming gases were thrown off by the sun, and one vortex formed the beginning of what was later the planet Neptune. Whirling, that incandescent mass threw off a part of itself, and in the following ages, that became the satellite. And when that satellite condensed into a sphere of solid matter some 3,000 miles in diameter, there was in the dull shell a fabulously rich heart of catalyte, more powerful than even radium in breaking down the atomic structure of elements.

Upon its discovery it had immediately replaced the dwindling supply of radium for that purpose. By miracles of diplomacy an interplanetary treaty had been effected, providing that the only known vein be jointly worked by a commission representing Earth and its colonies, Mars and Venus.

After two Terrestrial days (standard throughout the solar system except on Mars) Waite had recovered sufficiently from his beating to be able to leave his newfound friends. Because secrecy was futile, he determined to present himself immediately at the mine.

As he came into this closely-guarded zone he passed through several lines of guards, and finally was asked to wait before a heavily-barred door. This, he knew, gave access to the impregnable citadel deep within the rocky shell of Goddard. The surface outcroppings had long ago been covered over with a thick and adamantine shell of concrete, and there was now only one way to either the honeycombed body of the ore, the refinery where the pure catalyte was extracted, or the adjoining weighing room where the pure product was delivered, to be jealously divided up among the representatives of the three planets.

"Get up and stand before the visor," a disembodied voice commanded.

Waite did so, held up his credentials to the whirring scanning disc.

"All right, come on," said the voice, and the great bolts moved back silently. The heavy door opened, closing again very promptly as soon as Waite had passed through.

Factor Lyle himself awaited the Earthman. The factor himself was a Terrestrial, though he had spent many years on Goddard. He was tall and lanky. His thick, white hair fell away from hollowed temples. The long strain under which he had labored was telling on him. He heard Waite's story, not commenting until it was finished.

"That's just another proof of something pretty deep and serious back of it all," he said. "Some power is trying to precipitate a crisis. Anything for a pretext—that's historical—to seize the mine. And the power that has control of the catalyte has control of the color system!"

"And whom," Waite asked, looking at the older man levely, "do you suspect?"

Lyle laughed, then sighed.

"It's dangerous to jump at conclusions. It isn't hard to find a suspect. In fact, it's too easy. It's too clumsy to be true. You know, of course, whom I have in mind?"

"Snaide?" Waite drawled.

Lyle lifted his grizzled eyebrows.

"Pretty obvious, eh? If the Martian government wanted to start trouble, wouldn't it send somebody a little smoother than Snaide? His nasty insinuations would tend to set both Earth and Venus against his own world. What will it get them?"

"Do you think Snaide knows where the missing catalyte could be?"

"He couldn't have stolen it himself. It's handed over from the refinery in plain sight of the three world representatives. Each one takes his daily share and locks it into a private vault."

"It seems to me the right place to look for the leak is in the refinery, then. Who is the chemist in charge?"

"A Martian named Graxon. But the old fellow is absolutely reliable; he's been in the service for years. Besides—and that lets Graxon out—he delivers full weight for division. The catalyte is locked in the vaults. And when the vaults are opened it has shrunk by one-third, everyone's share alike! Yet the vaults are absolutely undamaged, the timelocks unchanged. It's uncanny. It suggests fourth-dimensional didoes. Absurd, eh?"

"Let's have a look," Waite said.

A few minutes later, in the presence of the three Authorized Receivers, as required by law, Lyle unlocked the thick metal door to let Waite into the refinery. Snaide was offensively polite. The Terrestrial Receiver was a man named Transon, middle-aged, dignified and worried. The man from Venus was tall, pale and calm, with a pointed gray beard. His lean body was draped in a grey robe. He said nothing, but his quiet eyes were ever on the alert.

Graxon came forward. The chemist was nearing sixty, although he was still sturdy. His hair was grey and abundant; his skin, for a Martian, usually light. Large, dark and anxious eyes looked out from under bushy brown brows.

"Waite, meet Graxon," Lyle said. "Graxon's a virtual prisoner, under contract not to leave this room for ten years, and he has another year to go. Graxon, Waite has come from Earth to see if he can find out where the catalyte is going. He'll appreciate any help you can give him."

It seemed to Waite that the chemist's deep-set eyes wavered. Then they became expressionless.

"I live here, sleep here, eat here. I get the concentrate, extract the catalyte, deliver it to these gentlemen. I don't know anything." Graxon's voice was vibrant, yet curiously veiled. To Waite his attitude was one of anxious defiance. What had this man to conceal? What had he to fear?

"How long have you been here?"

"Nine Terrestrial years. I have not been outside since I first came. My work, with automatic machinery, is easy. I have no visitors. I do my work." His mouth closed firmly, as if to shut off further speech.

Waite prowled around the big room. It had been hewn out of the solid rock, and was filled with a wilderness of machinery and chemical equipment, the use of which Waite understood only vaguely. All openings, such as ventilators and chutes through which concentrates were dumped into the bins, were provided with complicated safeguards to prevent smuggling out of catalyte. Besides —always it came back to the incontrovertible fact—Graxon delivered the proper amount of catalyte. It disappeared after that.

THE others were already turning to go, and Waite was about to follow them when he was stopped by an unexpected sound.

It was nothing but the muffled tapping of metal on metal, but it made him turn suddenly, every sense alert. For it had seemed to him, for a moment, that someone was tapping out a code somewhere. The next instant an automatic control snapped, and a huge machine began triturating a fresh batch, drowning out the other sound. Graxon seemed not to have heard, but to Waite, watching him covertly, it seemed that the old Martian's breathing was faster than normal. Graxon stood where he had been until they bolted the great door on him in his voluntary exile.

That day's production was not to be delivered for several hours more, and as the others showed no disposition to leave, Waite stayed with them in the long, plain waiting room. As he listened to their conversation he sought for some hint, some key to plots and counterplots that were shaping the destinies of the human race. Behind these polite conversations were threats of war, of wholesale destruction, of whole planets blasted by death.

But more and more Waite found his thoughts straying to Glyda, the beautiful Martian girl. Had she betrayed him? It was quite possible that Snaide, in murderous jealousy, had caused them to be trailed to the garden. And if jealousy had not been the motive, then there was the matter of the catalyte. Perhaps even Snaide knew nothing of that attack. There were strange and powerful cross-currents of intrigue at work on Goddard.

Snaide, stiff, military, with hooded eyes, discussed polite inanities. Watching him, Waite dismissed one question after another until one was left, "What had happened to Glyda?"

And then Snaide, as if reading the younger man's thoughts, asked casually:

"And how did you get along with my compatriot, your old friend?" He accentuated the words subtly, as with secret amusement.

"I did not get to talk long with her. Someone, with reasons unknown to me, tried to kill me. Who do you suppose it was?"

Snaide smiled maliciously.

"Rival, probably. One or more of her lovers. Her sort, you know—must be on the watch for those things."

Waite felt himself becoming angry. He felt the blood rising in his face. Glyda was nothing to him, he told himself savagely. With an effort he controlled his voice. He said clearly:

"From what she told *me*, you aren't in a position to say much about her personal habits, Snaide. So, may I suggest that a gentleman would hardly be so free with his mouth?"

Nothing that Waite could have said would have infuriated the Martian more. He was of the sort, not unknown on Earth, who bolster up their waning prowess with women with sly hints and innuendos. Waite's blunt statement of his failure with Glyda was like a blow. Snaide's fist lashed out. But Waite, with certain pleasurable satisfaction, stepped aside. His return blow caught Snaide's prominent nose, smashing it, and Snaide tumbled ignominiously to the floor. He did not attempt to rise again, but the baleful glare of his eyes spoke death.

Happier than he had been since he met Glyda, Waite left the treasure citadel. One man more or less with a desire to kill him was nothing to worry about, and he was still thinking about the muffled clanking he had heard in the laboratory. A clanking such as might be transmitted by a pipe for a long distance through a rock. A pipe that could be used to discharge the liquid catalyte concentrate into some secret cavern after refining to small bulk. What if that precious element did seem to disappear from the vaults? Waite knew that the most obvious things are sometimes the last to be discovered, and he was sure that, once he found the key, the whole mystery would resolve into the utmost simplicity.

The rest of that day Waite spent prowling around the mine. It was so thoroughly policed that it seemed impossible for anyone to take any concentrate out of it, even if Graxon managed to return some of the refined product to some confederate. The next day, Waite determined, would be spent on the surface.

That evening, tired but somewhat refreshed by a bath, Waite again entered the great dining hall. Although he did not wish to admit it to himself, he knew he was hoping to get a glimpse at the vivid little Martian girl whom he could not keep out of his thoughts.

When he did see her the brilliant place became, for him, dark and cheerless. She was sitting at a table with Snaide, and the latter was leaning toward her in a very proprietary way. Both of them caught sight of the Terrestrial. Snaide glared malignant triumph. But Glyda's brilliant green eyes passed over Waite indifferently. She turned and smiled at Snaide.

It was a grimmer, quieter Anton Waite who donned the sausage-like space suit the next morning in the municipal airlock. He felt at his belt to make sure the borrowed ray-tube was in place, turned on the oxygen and stopped before a piece of apparatus, an ancient device.

It was nothing but a glass jar through the neck of which projected a rod with a round metal ball at the end. At the bottom end of the rod, inside the jar, were two limp pieces of goldleaf, hanging together—an electroscope, one of the few scientific instruments that had survived unchanged through the ages. Waite tested it, to make sure that the protective sheathing of his ray-tube would prevent its tiny storage charge from affecting the instrument. Reversing the airlock valves, he walked out upon the surface of Goddard.

IT was a weird landscape, judged by Terrestrial standards, utterly bare, a scene of complete desolation on every side. The far distant sun was small, yellow, weak. Though it was then at its zenith, its light was flat, unreal. Much more impressive was Neptune, an enormous, nearly featureless moon glowing with soft reflected light, then just half over the horizon. So enormous was it that it

looked more like a gigantic domed mountain not far away, than another heavenly body.

The surface of Goddard was scoriac. No changes of weather had softened its harsh outlines. A succession of low, choppy cliffs stretched away on all sides, their bases white with what looked like snowdrifts. In reality it was solidified carbon dioxide, so great was the cold. The airlock itself stood on a low, rounded mound about 400 feet in diameter, the vast concrete seal that covered the entire mine. High overhead on a spidery tower burned an intense white light, the marker for incoming space ships. A half dozen ships, upright cylinders with conical tips, stood ranged nearby, each in its launching pit. They were deserted. Men did not ordinarily court the intense cold, the suffocating atmosphere.

Methodically, Waite took a cloth and began to rub a small object that was wrapped in it. With this he touched the metal ball of the electroscope. When the instrument was charged, the bits of goldleaf strained away from each other. Holding this carefully upright, Waite began a slow, systematic quartering process over the surrounding area comprising a circle with a half mile radius.

After four hours he was bathed in sweat, despite Goddard's relatively slight gravity. The electroscope had shown no marked loss of charge.

And then, suddenly, it showed a very rapid leaking off of its charge, the leaves falling together every few minutes, a sure sign of catalyte nearby!

When he finally found the crevice he was looking for, he realized that he might have passed it a dozen times, so well was it hidden. But when a minute later he found a footprint in a bank of carbon dioxide snow he knew he had found a thieves' lair.

He set the electroscope down and, ray-tube ready, crept slowly down the steep slope of a rough path that led deep under the surface. He moved gingerly, for if a jagged rock should tear the space suit, death by asphyxiation would be inevitable.

Soon he had to feel his way in complete darkness. And still it led downward. Once he tripped over a wire and waited fearfully. But nothing happened, and he went on.

He had about decided that he was lost when his questing fingers came upon a metal door. It was a typical spacelock, circular, with a handwheel that could be operated from either inside or outside. Waite turned the wheel hurriedly, to his joy it was not locked. If any of the conspirators were inside they might think he was one of their number, and could be surprised.

In a moment he was inside the cramped space within the lock. And then he was inside. Everything was in pitchy darkness. There was no sound in the helmet microphones. Ray-tube ready, Waite crept forward, feeling for a light switch.

Suddenly a flexible metal rope came over his head, pinning his arms to his side. His unwieldy suit further hindered his movements, and although Waite fought with inspired fury, he was soon lying helplessly on the floor, with the weight of three or four men holding him down. A light disc on the ceiling glowed white, and someone roughly pulled Waite's helmet off. He was jerked to his feet.

"It's that damned Earthman!" an exulting voice exclaimed. Waite knew it well. It was Snaide's.

"Hardly expected such luck!" Snaide gloated. "Dozens of men have tramped around overhead, and the one we want finally drops in! Who says luck isn't with me? Luck is a lady, and ladies like me."

Waite, looking at the Martian's fierce, ugly face, with its broken hawknose, smiled, despite his predicament. Snaide, still of injured vanity, snarled with hate.

"Before you die, look!"

He grasped Waite by the shoulder, whirling him roughly around.

Standing a few feet away, her clear green eyes inscrutable, was Glyda. She was dressed in a space suit, helmet off.

Waite's open countenance twisted in a sardonic smile. He suppressed an absurd desire to bow mockingly. Burning words came to his mind, but did not pass his lips. At last he did say, gently:

"At least this, Glyda, was not your treachery."

To his amazement, tears sprang into her eyes. She turned away.

Beside Snaide there were two other men, Martians. One was horribly scarred by a ray burn about the face; the other was handsome, possessing the hard gloss that goes with living both richly and dangerously. All three were draped in the baggy fabrics of their deflated space suits, their helmets hanging at their backs.

Triumph and amusement had left Snaide, and he looked at Waite speculatively.

"How'll we get rid of him, men?" he asked.

"Burn him!" the scarfaced one returned promptly, his tube already in his hand.

But Snaide vetoed that.

"Won't do. He's got to die by accident. His body has to be found. We don't want an I. F. P. inquiry."

"Tie him up till he freezes," the sleek Martian suggested.

"Won't do either. This bolt is pretty able to take care of himself. He wouldn't freeze by accident." He pondered. "Here's what. We take him out, rip his suit. Make it look as if he slipped on a rock, tore it. Not bad?"

"Well," sneered the sleek one. "If he's so good, would he slip?"

"We'll find a likely place. Wurtz, you stay here and guard the prisoner. Create, you come with me."

CHAPTER III

Waite's Discovery

HE of the scars tied a couple of more precautionary knots to hold their prisoner safe, while Snaide and the other man slipped on their helmets. Still he was not quite easy, keeping a vigilant eye on Waite as his compatriots passed into the airlock to the accompaniment of hissing valves.

Glyda came forward again. She looked at the trussed prisoner coldly.

"Wurtz, those knots aren't tight enough. Better pull them up if you want to keep out of trouble."

"Wurtz did his, turning his back to her. As he did so she knocked him unconscious with a wrench.

"Quick!" she panted, working at the rope. "You might have a chance. Tie him up."

All this was the work of only a minute. Then, with

Wurtz gagged and helpless on the floor, they faced each other. Glyda smiled wistfully. Her remarkable green eyes were again suffused with tears. Her voice, which ordinarily was sonorous and sweet, trembled.

"We are both going to die soon, Mister Waite, but we may die fighting. Must you despise me to the end?"

"Hardly!" he floundered. "I know that circumstances—something—has put you in a bad light that you don't deserve. What is back of all this?" He approached her. His thin metallic gauntlets touched hers, but through the rasp of metal he felt the thrill of that contact. Instinctively he put his arm around her, drawing the stiff material of her space suit in to her waist. A wave of tenderness came over him.

"Never mind telling me, Glyda. All I want to know—I realize you mean much to me."

She smiled gallantly.

"But I must tell you. We will both be dead when Snaide sees him." She touched the prostrate guard with her toe. Tell me this first: Am I what men desire?"

"You're all that any man could desire," Waite declared impulsively. "With you I would want nothing else!"

She smiled again, shaking her head.

"In that respect, then, you agree with our Planetary Secretary of Finance."

"Mesuen?" Waite, like every other Terrestrial, knew of Mesuen, that figure of arrogant and almost legendary power on Mars. He was known to be the real government of that planet, directing the policies of elected officers, perennially reappointed by all parties. He had talked over an interplanetary photoaudio hookup. A man of indeterminate age, smooth, slender, paler than most Martians, with crafty, hooded eyes. A connoisseur of the arts, and of women.

"Mesuen?" Waite asked. "What about him?"

"He saw me dance. He sent me an enormous basket of Venus orchids. The other girls were wild with envy over the honor—and the implication. I knew what was coming. It did. A few days later I received notice from the Eugenics commission to report to Government laboratory. They have power to conscript, you know, for experimental purposes. The department of biology is authorized by law to do that."

Waite nodded. The object, he had heard, was to improve the race.

"I knew," Glyda continued bitterly, "what the bureau would do. I wouldn't stay long in the laboratories. Instead, I'd be immediately referred to Mesuen, just another one of a long succession of 'experiments.'"

Nevertheless she spoke without heat. That infamous prostitution of an originally laudable institution was an old story throughout the inner orbits.

"I tried to escape, but the government agents soon got on my trail. I dared not try for the interplanetary ports, but fled from city to city. At last one of the agents caught up with me.

"To my joy, he told me that he also was working for a private organization that was not in sympathy with the government. He said he would help me get away. I was touched by his humanity. I said I would never forget what they were doing for me. They never let me forget!

"This man obtained a forged passport for me, and passage on a catalyte service ship as a cook. You smile! But I can cook!

"Once I was here this man took me to Snaide, and then I learned the reason for their kindness! Mister Waite, did you look closely at the Martian they call Graxon?"

"Graxon? Yes. What did he have to do with the plot?"

"Graxon is my father. My mother died when I was a little girl. My father's life was one sacrifice after another for my career. He took the Goddard post, which few skilled chemists will accept, only because the money would put me through the best schools. I had not hoped to see him for another year, and I was overjoyed to learn that my mysterious friends were taking me to Goddard. I hoped I would have an even chance to visit my father. How simple I was not to realize I was putting myself and him in their power!

"We were soon to learn the price of my safety. A criminal syndicate, of which Snaide is a member, plans to set up an outlaw government and to fortify Eros. To do this successfully requires a big supply of catalyte, and this is the only place where it can be had."

Waite listened intently as the girl recited her amazing tale of a colossal interplanetary cabal. He himself had direct proof of its actuality. But one point was not clear.

"You said they forced your father to help them. But I came to the conclusion that your father must be innocent, despite some suspicious circumstances, because he delivered a full consignment of catalyte every day. It disappears *after* division."

"No, not real catalyte."

A LIGHT slowly dawned upon the Terrestrial. He was familiar, as the human race had already been in the dark ages of the Twentieth century, with the fact that radium, which was in some respects similar to the far more active catalyte, gave off emanations, and he glimpsed a hint of the truth.* Glyda answered his unspoken question:

"Simple, isn't it? The catalyte emanation is a single, very volatile gas, Catalyte A; so my father explained it to me. He found a way of solidifying this gas for a matter of a few hours. Then it again becomes gaseous and escapes or enters into compounds. Understand? Only he knew how to solidify the gas. He extracted it from its union with the ores, solidified it, weighed it in with the real catalyte. It looks pretty much like the real catalyte. Passes the radiation test too. But later, in the safes, it simply evaporates."

"And the real catalyte? That went through some hidden pipe?"

"Yes, complete except for the final stage. The pipe was drilled upward from here. He pours the concentrate down the pipe. See those big vats back there? That's where the missing catalyte is."

Waite looked at the great tanks in which reposed interplanetary power for a small group of criminals. The mystery was solved. Ironic success! At that moment he had attained his objective; at the moment that he had vindicated this girl who had for him such great attraction—at

*It is astonishing that the human race did not learn to break up atoms sooner considering how close it came to the truth. An ancient Webster's Interplanetary Dictionary found in the ruins of New York gives this illuminating information on radium, disclosing a brilliant stab in the dark by the ancients: "The radioactivity of radium is an atomic property resulting from the disintegration of the atom, occurring in at least eight stages. The successive products are called 'niton,' 'radium A,' 'radium B,' etc. Niton is a heavy gas, the others are solids. Niton is half transformed in 4 days, A in 3 minutes, B in 25 minutes; C in 21 minutes, etc."

that moment he was standing on the threshold of death! And the world would never know of his discoveries until it was too late.

Now that Glyda had laid bare her secret some subtle change had come over her. She seemed still younger. And in some small degree, happy. She faced death with confidence and courage, strengthened by the presence of this stranger from Earth who believed her. She put up her lips to be kissed, and for some moments in that silent chamber they forgot everything else.

But stern realities pressed upon them.

"They will be back any moment," Glyda said, rearranging her tumbled dark hair under the golden filet. "I had thought of surrendering to the government in order to save my father, but the first day he diverted the catalyte he incurred the penalty of death. I am going to tell him now what is happening. Perhaps he can escape."

She picked up the wrench with which she had felled the scarfaced Martian, and began to tap on a pipe that came through the wall. In a moment there were answering taps.

"He is ready to communicate." She swiftly tapped out her message.

But there was no chance to get a reply. There was the sound of someone at the airlock, the click of a key being inserted.

"We will die fighting," Waite said quietly. "We will have a better chance here than if we tried it out in the open, with no shelter." They had taken his ray-tube, but he had the one belonging to Wurtz. Glyda stood close beside him.

The expected opening of the airlocks did not come. Only an indeterminate scraping noise.

"I forgot!" Glyda cried suddenly. "They see we are free. They have a way of looking inside. I'm sorry! They will kill us without a fight. Say you love me!"

Waite clasped her in his arms. There was no time for the slow bolting on of helmets. Gas was already coming into the chamber. Snaide was thorough, if nothing else.

"I love you, Glyda," Waite said.

The gas had a sweetish, unfamiliar odor. But its effect was immediate. He felt the perspiration starting from his forehead. Glyda was swaying in his arms, her face a ghastly blob of white. The room, silent before, became peopled with phantom sounds, the beating of drums, the booming roar of rockets. The light seemed to become dazzling in its intensity. And then there was no sensation at all.

THEY had misread Snaide's intentions. He had no desire to kill Glyda, and the gas was merely an anesthetic. Almost immediately, so it seemed to the Earthman, consciousness came back with a rush. He was jerked to his feet by the sleek Martian, Create. Snaide himself was supporting Glyda. And Wurtz was lurching drunkenly about, his hideous face still showing the marks of the lines that had held his gag.

The Martians did not speak. They busied themselves with bolting on their captives' helmets, and this took several minutes, after which, with a ray-tube menacingly at his back, Waite began the long ascent to the surface. He could not see Glyda, but the fact that she had also been helmeted indicated that she would follow. Would Snaide dare to let her live? It was doubtful. Her knowledge was too dangerous. Old Graxon, too, would be murdered if he merely indicated the fact that he had received that last message.

It seemed a pretty hopeless situation, but it is a human characteristic to hope against hope. Waite went ahead warily, trying to watch, by the faint reflections on the inside of his glass helmet, when Snaide should approach to deliver his blow; the expected knife stroke that would rend his space suit and deliver him to asphyxiation.

They climbed up a ragged rock slope. The rock was cindery, porous. Great jagged pinnacles of it reared up on every side. The distant yellow sun threw hard shadows. High overhead was the intense pinpoint of the spaceport light, barely distinguishable from the ground, from the myriads of stars that burned steadily and coldly in the black firmament. Illogically, an ancient rune came to the Earthman's mind:

"And from a proud tower in the town
Death looked gigantically down."

There was no town here, and Death was walking behind him. He could see the dim reflections in his helmet. And at the bottom of the slope, to one side, was the concrete top of the mine city. Its airlock was dark and deserted.

They reached the side of a deep ravine, a sharp cleft in the rock, filled at the bottom with carbon dioxide drifts, and here the Martians attacked.

They did not slash with a knife, as anticipated, but went about the business in a way that would be more convincing at the inquest. Three bodies struck the Earthman and bore him down. They dragged him across the jagged, edged rocks until a fold of his suit caught. Waite's own struggles helped them. There was the sickening tear of tough fabrics, and the soft *whoosh* of escaping air, followed by bitter cold as a puff of outside atmosphere penetrated through the rent.

Sudden faintness overcame Waite. Although there was still oxygen in the suit, its pressure was very low. Dimly he felt himself lifted. Then he had the impression of floating, only to land with a jarring thump. He could feel the hot wetness of blood flowing from nose and ears, and looking up with pain-dimmed eyes he could see a patch of black sky, cut off on either side by rough rock walls. They had thrown him into the ravine, and only the fact of Goddard's low gravity had saved him from immediate death.

Waite wondered what had happened to Glyde. His condition was one of curious abstraction and inertia. He could no longer feel the cold at his back where the rent was. The skin there was numb with cold. But the oxygen regulator on the little tank over his shoulders was fluttering madly, trying to equalize the pressure. Perhaps a minute or two—then the tank would be empty.

Delirious already! Waite saw the image of Glyda above him. She was smiling through the glass of her helmet. Her green eyes were brilliant in the wan sunlight. He realized that she was no hallucination. She had climbed down to him. She rolled him on one side, grasped the folds of the torn suit. He could feel her fumbling, hindered by her gauntlets. But she succeeded. In a moment the suit was filling, and the valve fluttered more slowly.

Rolling the jagged ends on themselves, Glyda made a temporary but effective repair, and as the oxygen pres-

sure rose, strength returned to the Earthman. Later he might experience the horrors of the bends, but he was alive, and life beckoned.

Glyda was talking, but something was wrong with the helmet phone. She put her helmet down so that it touched his, rubbing with a thin squeal of glass on glass.

"Can you hear me?"

"Yes. Glyda, what happened?"

"Somebody in the city came to help us, among them a couple of I. F. P. men, and many others. They came through the lock just as Snaide and his men threw you over. They're fighting now. Look!"

There was evidence of it. On all sides tall pinnacles of rock towered into the sky. Every once in a while one of them would show a small glowing spot. The place of a heat ray's impact. That meant Snaide and his men were at bay somewhere in that tumbled wilderness.

AGAIN Glyda's helmet clinked against Waite's.

"My father understood the message. He warned the police. But he may not have told them everything."

Waite looked up into the lovely face, wistful, appealing. He motioned to her to touch helmets again.

"Are you asking me what I shall do?"

There was no need for an answer. Her eyes said "yes."

"If I live," Waite said with great distinctness. "If I live, I will have to make a full and complete report to the interplanetary authorities. You will be sent to Earth under diplomatic immunity. But in diverting one single grain of the catalyte . . ."

He did not go on. The dumb anguish in her eyes cut him to the heart.

"They call it high treason. You understand? It is my duty, if I live. Don't you understand, dear? By saving my life, do you know what you're doing?"

It took courage to say that. Anton Waite was young. Life meant much to him. But he was so constituted that he would not purchase it from this girl for an implied promise that he could not keep.

Her head went up. The hand that held together the rent trembled. Again her pink skin became that marble whiteness so strange in Martians. She looked straight ahead, as one who sees the end of hope. But the hand that formed the barrier between Waite and death remained firmly where it was.

Overhead, a man appeared on the rim of the rock. His was the attitude of a fugitive. Ray-tube in hand, he faced back. Pale red beams flashed from the tube in his hand. He leaped the chasm with lightness incongruous with so much bulk. Once more he looked back, and as he did, his glance fell on the man and the girl at the bottom. Waite saw the hate distorted features of Snaide, the Martian renegade. It was all like the frozen section of a dream, broken by the sudden bloom of a red spot on the pinnacle beside Snaide's head.

Then Waite saw the tube in Snaide's hand swing around and downward with a deadly deliberateness. But Snaide never loosed that beam. The slender red ray from the direction of the city struck his helmet. The tough glass instantly cracked into innumerable pieces, which flew, under the internal pressure, in a shimmering cloud in all directions. Snaide slowly turned on his heels, his exposed head puffed and bleeding, and pitched headfirst into the ravine. His body landed in one of the white banks that so much resembled Terrestrial snow-drifts.

Glyda once more put her helmet down. Her voice was resolute, but infinitely sad.

"Farewell, Mister Waite, the only man I ever loved. I found something on Goddard, and lost it. That was happiness. I shall never see you again, Anton Waite." Her chin trembled, but she went on bravely.

"I shall go back to Mars, to Mesuen. What does it matter?" She smiled whimsically, concealing her heartbreak.

"And if you're ever in Montesso, ask for me at the theater. I will most likely be back by that time. Ask for me, and I'll get you a pass."

* * * *

The men from the city made their approach cautiously, alert for an ambush, and it took them some time before they found Glyda and the Terrestrial. They also found the bodies of Snaide and his men, and it was a first-class sensation. Hackett and Belts insisted on taking Waite to the I. F. P. office for first-aid treatment, and there he soon recovered sufficiently to think over his next move.

"Buck up, Waite!" Hackett urged genially. "What's the matter with you?" He applied tape to the medicated cotton dressing he had applied to the raw frozen area on Waite's broad back. "Here you've done a job any of us would be insufferably proud of, and you mope around like a recruit who's cracked up his ship on a meteorite. What's soured you?"

"You'll never know," Waite said dejectedly.

"Woman!" was Belts' sage contribution. He looked at Waite with sympathy.

"I want you two with me when I arrest old Graxon," Waite said.

"Does he know?"

"Of course he knows. He gave the warning to save his daughter. Men, I feel rotten about this thing!"

A few minutes later they were in the restricted zone surrounding the refinery, and after complying with the formalities, Transon let them in to the old Martian chemist. Graxon seemed not unduly agitated, but Waite remembered Glyda's stark courage, and he ascribed Graxon's calm to the same reason.

"Graxon," he said, "I'm sorry, but I have to arrest you."

"For what?"

"For diverting catalyte from the use of the use of three governments; for substituting solidified catalyte A."

Graxon folded his arms over his stocky chest. A quizzical smile illuminated his square features, and his eyes twinkled.

"How do you know I diverted catalyte?"

"It's down there in Snaide's cave."

"That slop? Those are the tailings. There may be half a grain in the whole mess. The irreducible minimum. Enough to work a 'scope. Good enough for Snaide and his ignorant crew."

"But what did you do with it? You didn't deliver it. You fooled the Authorized Representatives. What about it?"

"Is there anything in the Regulations fixing the quantity I must deliver? Read 'em, as I did. I'm in absolute charge in this room, and my only limitation is that I must deliver all the catalyte I finish. Well, it happens that I didn't finish it. I saved up a barrel of very rich con-

(*Concluded on page* 86)

BROOD OF HELIOS

By **John Bertin**

(*Illustration by Paul*)

Like some animate devilish thing the mechanical monster spun and thrashed among the fleeing, scattering, yelling horde attacking the city beyond.

BROOD OF HELIOS

What Has Gone Before

PROFESSOR GEORGE MEREDITH, eminent scientist, his niece Ruth Meredith, her friend James Gregory and Alan Deneen, former football star, awaken from a trance in Meredith's laboratory in a skyscraper in the heart of New York to find themselves in another part of the universe. Meredith had been experimenting with electronic barriers.

They find themselves on the side of a hill in a wild desolate country, filled with a strange rubbery vegetation and populated by strange animals. Above them are two suns, a red and a blue sun, and at night a strange moon shines out. The first night in the wilderness they see a great rocket ship shriek across the sky. They realize now there must be sentient creatures on this world. One ship falls near their hiding place and they rush to meet it. They are attacked by a group of kangaroo-like creatures. While Gregory and Meredith rush to the ship, Deneen fights off the creatures with Ruth at his side.

The two men are apparently captured by the creatures from the ship, which rises into the air again and disappears to the north.

Deneen recovers and with Ruth they fight for months against nature for survival. They find that this world has two types of vegetation and life—one of the non-protoplasmic rubbery variety, and the other the kind of life they had seen on earth.

Deneen and Ruth after seeing rocket ships eternally shooting toward the north determine to go north themselves and try to find the civilization that must exist, rather than fight brute nature for the rest of their lives.

Now Go On With the Story

TANGIBLE recollections were very rare now. They were following a wide stream that came curving out of the east and ran north, and life grew easier again. But then moods began to trouble Deneen. They grew upon him. He brooded by the fire. The woman sometimes cried. The weight of their endless quest was telling upon her. Deneen broke his silence one night.

"Ruth—something is wrong with me. I see things. Like a picture in my mind—two pictures. One is of a white city, terraced, columned, where move people—many people, and over all this I see a man's face. A man with great eyes, Ruth. Then the pictures change and there is a deep valley set in mountains and smoke; and streaks like rockets coming up out of the smoke; and all around, coming down the hill trails are men—short, ugly customers, armed with clubs. I can hear drums beating steadily. What in the name of common sense can it mean?"

It was like hearing Deneen talk after long years of silence, for lately they had seldom voiced complex thoughts. The woman brightened. "Just dreams, Alan."

"No!" He shook his head. They were camped near the river banks, and water gurgled a low song in the darkness beyond the fire. The man pointed to the moon. It had taken a strange appearance now, a phenomenon that confirmed Deneen's early theory of complex rotations. Two crescents hung in the sky, the horns opposite one another, one faintly red, the other slightly blue, and forming an oval enclosed by the horns was the faint pale sheen of the satellite's center.

"There seems to be something calling me, Ruth!" the man half growled. "Driving me . . . From up there . . . I forget your uncle and Gregory. Sometimes I wonder if they ever lived, if there ever was another world. The rocket ships—we haven't heard a sound for ages it seems. I try to figure things out, but it's the morning coolness that counts, the song of birds, a good hit with the bow, good meat and . . . you. I've become an animal, Ruth. I can't remember why we started—why we keep moving. But I'm driven! Someone is talking to me all the time, sending me north—north. And the voice is connected with that city I see, that white-columned city. Ruth I'm afraid I'm going mad!"

She laughed confidently. "Not you, Alan. You are too strong. So strong!" she laughed a bit in the crush of his arms. "Alan—what does it matter? I am content, whether we move or stay."

"No," he answered. "I know. This can't go on. Somewhere we'll have to stop. This river runs to some sea, some lake. We'll make a home, Ruth. The things in my mind are probably the distortions of old memories. Once I saw your uncle's face in the place where the rockets shoot up. Just distortion of old memories. This world is empty of our kind." He caressed her gently with his great hand.

"Little woman — the bravest woman God ever created!" She snuggled in his arms, tears of relief wetting her eyes, for the man seemed to have come back to her after a long absence. The incessant battle with naked nature had hardened him of late, broken the little contacts of mind, the tendernesses of another world.

Then, as she relaxed, happy in his embrace, she heard Deneen exclaim in hoarse surprise. "Ruth—look! Look—up there! The moon! Great guns!" he cried out, rising with her to his feet—"that's not a natural light! That's a signal, Ruth!"

In the faintly visible oval between the crescent horns of the moon had appeared a branching of red fire—a tracing as of a miniature tree, a single stem that spread into a many-fibred crown, a profusion of little filaments that wavered, lengthened, shortened. It quivered there

THIS most unusual and gripping story enters now upon its most exciting phases—when part of the terrible mystery that hangs over our characters will be revealed. We have seen how two highly civilized beings can suddenly be plunged into an eternal conflict with nature; and be driven down, almost, to the level of the brute in the bare struggle for existence.

They have two alternatives—to live as they can, in a state of semi-savagery but security, or to dare the dangers of the unknown forests to try to find the civilization that must exist somewhere on this planet. There are undoubtedly men like themselves to be found . . . perhaps friendly . . . Their two friends must be found and the whole terrible mystery explained. And it will be explained in this installment.

in the heart of the moon, an incredible thing, pulsing .... pulsing . . . then winked out, to again appear and go out. Deneen muttered hoarsely: "Ruth—I can see! See the city! See people, white-faced people, gathered in a great square."

He shook his head. "This is queer business. Someone is calling me, Ruth. I hear him!" He was silent for a long time, while the woman stared with wide eyes at that weird signalling in the sky. Somewhere, on the plain beyond the forest, a wolf howled—long-drawn, mournfully. Deneen suddenly relaxed. He blew a great breath through his nostrils. "Whew! Now it's gone. I must be going daffy. But the voice seemed real, Ruth. And I saw the other place again, where the rockets shoot out of the valley. Saw your uncle's face."

He sank down by the fire. "The little I know of science doesn't fit into this," he muttered. Together they watched the red, winking message in the sky. The fire died low.

Morning found the moon huge and distorted in the mists to the west. Deneen moved with new purpose. "Something's going to break!" he said in the familiar slang of a forgotten world. "There are weird things going on in this place." He paused in the act of slinging the arrow-quiver over a brawny shoulder. "Say—Ruth! What if those rockets came from —up there? Why not?" And later, as they moved slowly along the river, he muttered again. "Why not? Fantastic—but simple compared to another puzzle. How did *we* get here?"

The river broadened. Deneen chafed at their slow pace He was struck with an idea and after a few days of hard work, with vines and fallen branches, it assumed tangible form in a rude raft. "We should have done this long ago!" he growled.

"What if the river turns?" asked Ruth. "It might take us to some place the rocket ships never pass."

"They're not passing in crowds now!" muttered Deneen. "This river ends in some big water. We'll follow it down!"

JOHN BERTIN

THAT night they looked with intense scrutiny at the moon, but no red message pulsed in its center. The blue crescent waned, the red one grew as the days passed. Deneen was restless. Their life was easier now, floating down river, finding game around the bends in the winding stream; and as the iron rigor lessened, the man's mind ran on and on. He wondered about the phenomenon on the satellite, about the things that had appeared in his mind.

One late afternoon when the red sun, alone in the sky, threw long friendly shadows of weeds across the quiet waters, and long-plumaged fowl raised raucous outcry as the raft glided slowly around a bend, they heard the far, shrieking fizz that heralded the passing of the rocket ships.

"They seem to have their seasons," muttered Deneen, then grew rigid, a long push pole in his hands. "Ruth!" he said sharply: "That thing's falling!" The woman had been sitting among their scant possessions, face cupped in her hands, gazing at the sun splashes on the water. She came erect beside Deneen. Above them the shrill fizzing passed, and they saw the ship clearly—a long, silvery hull, plainly heading downward, passing out of sight beyond the wooded river banks.

"That ship *fell!*" cried Deneen, his powerful throat showing the sudden swell of veins. "Men, Ruth! Somewhere around here!" He pushed with impatient force at the long pole.

But night came swiftly in that world. A spangle of stars, veiled by the bright nebulous patches of the Milky Way, gave a faint illumination to the river's broad breast, and Deneen kept on. The woman did not move. She sat on a fresh wolfskin which had replaced the reed mat, and watched the shadows, the brawny back of Deneen as it twisted to the thrusts on the pole, and the forest line silhouetted against the stars. After a time she said: "Listen, Alan! Don't you hear—" a sudden alarm changed her voice. "Drums, Alan. Beating! Listen!"

The night air carried a muffled pulsing, distant, vaguely stirring. "Drums!" muttered Deneen. "Like the ones I've been hearing, Ruth. War drums!" He grounded the raft. "We'll stop right here." The sense of danger worked on him, and the habits of their long trek drove intangible considerations from his mind. He jumped out into shallow water and drew the raft to shore with a surge of his powerful shoulders. In the distance the drums throbbed, monotonously.

"Look!" breathed Ruth. Over the forest edge soared a thin white streak. It burst at the top and spread into a fanfare of colors, like the fireworks of a patriotic demonstration in the world they knew. Another and another thin swift streak went up, and burst into spangles of blue and crimson and green. In the distance a shrieking fizz sounded and grew.

"Look!" breathed Ruth again. "Another rocket ship! It's slowing circling around! It's shooting things down!"

Deneen stood like a statue, watching a silvery hull curve incessantly around a section of sky. From its bottom a thin even line of vapors trailed like streamers in the wake of flight, and near to this sudden puffs and flares marked the starting of projectiles which streaked earthward.

The drums in the distance beat faster, a pulsing rhythmic, savage pounding in the night. Deneen held Ruth close to him. A mental struggle, swift and painful, fought itself out in his mind. Instincts developed by their long sojourn on the plain and in the jungle whispered to hide, to remain safe. But the man muttered a sudden decision. "I'm going over, Ruth. Going to see! Those rocket fellows are up against it! The ship that went down is calling for help, and the one above trying to give it. Against what?"

Ruth did not protest at all. Leaving the raft tugging gently against its land-supported corner, they headed into the forest.

CHAPTER VIII

The Mysterious Ship

GUIDED by the circling rocket ship above, they made fair speed through the woods, Deneen helping Ruth over obstacles. The forest thinned. "Alan!" the tiring woman breathed. "The ship's moving—to the left. The drums are fainter!"

Deneen lifted her in his great arms, and waded a small stream. Straggling growth on its opposite bank showed open savannah-like country, wan lit, pale and mysterious in the sheen of the new-risen moon. They moved faster, out into the open, Deneen's wary gaze flitting to every tree clump in quest of his only and persistent enemies, the greyish-brown wolves.

The rocket ship, still circling, was far down in the sky. It spun over, and finally behind, low hogbacks of earth, rounded hillocks that showed on the horizon. "Alan—the raft—our things!" protested Ruth. But the man scarcely heard. "Come on!" he urged. "Try to stick it out. We've got to see where that first ship fell."

The moon was higher in the sky by the time they came to the rises, and Ruth was exhausted. Deneen stood upright over her as she lay spent in the long grass, his head turned to the hill-buckled skyline. The sound of pulsing, like primitive war drums, had died away. A profound silence lay over the moon-misted world. An impatience fretted Deneen.

"I'll carry you, Ruth," he said, stooping to swing her up in his arms. "Can't leave you here. Hold tight."

Breathing rapidly, his lungs labored, the aching muscles of his legs protesting, Deneen topped one of the mounds, and swung Ruth down. The sight ahead stiffened both. Levels, darkly smooth like glass, were in the distance, levels that were not land. The recognition came to both at once. Tiny crinkles shimmered in the sheen of moonlight. Nearer to them, on a stretch of pale earth, white billowy things were breaking, rippling. "Waves!" cried Ruth softly. "The sea, Alan!"

Deneen's hawk vision pierced the night. The dark levels stretched away out of sight. To the right the shoreline went on till outlines blended together. The line of thick vegetation that marked the river they had been following came out of the hills and spread like a fan in the left foreground.

The man nodded. "It's the sea, all right. We'll search for that ship in the morning, Ruth. It fell somewhere on that shore. We haven't time to go back to the river."

"Our things, Alan—the fire tube," she reminded.

"I want to see that ship right away," he persisted. "We can go back any time along the river. If the raft slips off, it'll come down to the shore, and we can't miss it. No—we'll rough it," he decided, a trace of grim humor in his tone. "We'll sleep right here."

It was slightly cool on the hill. A wind rustled the grass, and the fringe of bushes at the beginning of the slopes. Ruth curled up, her head against the man's shoulder. Deneen lay flat on his back, wide-eyed, gazing at the sky no man of the race he had known had ever seen—a star-studded sky with here and there knots in the white tenuousness of the Milky Way, splashes of light like tiny suns. To right of him a vast moon, nearly full, sailed over the waters of an unknown sea. Night after night that firmament had imprinted itself upon his senses, and it was no longer strange. The feel of the hard ground beneath him, the rustle of the wind in the grass—these things were woven into the fibre of him, and memories of another world were dim ghosts. But out of those memories his mind began to frame thoughts.

"We must have come quite a distance since we started, Ruth. Jungles where Manhattan should have been—forests and plains north, and then a sea. Might be Hudson Bay," he muttered jokingly. "Do you know?" he continued. "We would have frozen to death long ago in this latitude, if old Helios ruled the sky. But it was a good star, Ruth, that sun of ours—a good star."

"Alan—how strange, how unbelievable it seems when we think of it!" she murmured. "We had almost forgotten."

"That flickering on the moon woke us up. It was a mighty, queer thing that, Ruth. A mighty queer thing!" he reiterated, remembering a voice that had spoken insistently, steadily in his mind, and the pictures, vague and stirring, of two places he had never seen. He watched the huge satellite, turning his head. The woman's hair blew across his face.

Then, as he looked, the man stiffened. The moon was low toward the horizon, a phenomenon due to their latitude. But it was something about the vast red globe itself that held Deneen's attention. Black, irregular markings seemed of a sudden familiar. There was the circular cheek edge, a central shaded portion shaped like a nose—Deneen pondered, raising himself slowly on his elbow. It was like the face of the earthmoon, distorted, huge.

He lay back again. Just a resemblance. The light and other aspects of the huge satellite were continually changing with the days. Deneen relaxed. Stillness, like a profound benediction was over the world. Memories died in the man. He slept.

MORNING found the man and woman moving down the hills. The wind had risen again and after a short march, there came to both the familiar tang of brine, that again set their minds astir with many memories. But Deneen moved cautiously, edging out of the low growths that ran down to the shore.

The sun was clear of the horizon, but hung low over the trees, mute testimony to the distance they had traveled toward the pole of that strange globe. The coast-line, bare and irregular, ran away to the right of them. A faint diffusion of gold gilded the sea, coming from the low-riding red sun. The woman pointed.

"Look, Alan! The ship! See it—there by that headland! See it glints, like metal?"

Deneen saw. He was very rigid. The world was pristine, untroubled by any moving thing except the short, crinkling waves. "Come on!" Deneen muttered, a tenseness stealing over him. Together they went toward the fallen rocket ship, keeping close to the brushline, instinctively. With an ease developed through many days, they slipped from one covered point to another, the wisdom of the wilderness in their feet and supple bodies, its grim strength etched into the man's bearded face.

But they felt close at that moment to the world both had known. There ahead of them it lay, its nose grounded

in the sandy soil not ten feet from the water, a long cigar-shaped hull, a thing formed by intelligence, by tools and a background of knowledge. The woman's blood beat dully in her ears.

But no men, nor creatures, moved about the ship. Deneen swung the great bow to his left hand. They were nearing the thing now, and it grew in dimension.It covered a considerable part of the wide, bare beach, a beautifully streamlined shape, glinting faintly at top. Near the forward end an oval break in the smooth surface marked an open door.

"Wait!" said Deneen sharply. "What's that?"

Close to the water, some twenty feet away from the forward end of the ship, an object lay sprawled. The tide was evidently rising. As they looked, a part of the inert mass shifted to the wash of a large wave. The movement connected ideas forming in Deneen's mind.

"That's a man, Ruth!" he said, his voice a bit metallic. "A dead man. The wave just tossed his arm." He turned. There was a steeliness in his grey eyes. "Those drums were war tom-toms all right. I'm going over to that ship. Perhaps you'd better wait here, under cover."

"No, no," she disagreed hastily. "No, Alan! I'll come along."

The dead man lay on his face, his left arm drenched by the wash of the waves. Deneen approached very slowly. There seemed a strangeness about that human form on the ground. His scientific knowledge rejected the too close resemblance to . . . This was another world, in another part of the universe. The long solitude, save for the companionship of the woman in the journey through jungle and plain, introduced an added touch of unreality, but the nearer he approached the more Alan Deneen felt a sense of normal wonder, of acceptance and curiosity. The sprawled form was undoubtedly human. And it was neither Jim Gregory nor Dr. Meredith.

Deneen knelt in the coarse sand, putting the bow down. The dead man was quite bald. One side of his head was smashed, an ugly dent which would have horrified Ruth Meredith at one time. But she looked on as Deneen turned the body over, though her face went pale beneath its tan.

"Clubbed to death!" muttered Deneen. Then his fingers plucked at the man's clothing. "Curious stuff this is. And look at his arms and shoulders. Smaller than a woman's." He paused and stayed rigid for some time.

"What is it, Alan?" questioned Ruth anxiously.

Deneen shook his head. "That face, high forehead, slim nose—I've seen a face like that in my mind." He rose. "We'd better look around. The ship first."

They approached almost reverently. The great hull was slightly tilted, and through the open oval of the doorway they caught a glint of metal. Deneen looked in and up. "Jammed!" Jolted straight over a swing pin, and jammed. The ship struck the ground pretty hard."

In front of the hull the earth was scoured and pitted and burnt. "Guess they got their bottom front rockets going in time to prevent a complete smash." Deneen's gaze went along parallel ridges, running down the sides of the ship. Between each set of raised metal bars was a slot, apparently punctured by myriad holes. Every four feet, flush with the outer surface, was a square of glass or substance much like glass.

"Let's go in," Deneen said, his breath a bit quick. "This is some rig."

Ruth cried out in astonishment when Deneen lifted her through the doorway. The interior of the big ship stretched away before them. Lanes and blocs of illumination from the rising sun, coming through the square windows, were splashed on tier after tier of seats. An aisle ran through the center, and at spaced intervals, box-like proturberances reached out from the wall. Deneen felt a slow surprise.

"This looks like a big, simplified Pickwick bus!" he muttered. "And how do they drive it?"

THE forward end was practically bare. At first glance Deneen was reminded of an electric tram car; save that the front window was bevelled to fit the sharp prow. Below the glass was a lever desk of a long, polished substance, and it held but two handles—plain things that moved in slotted gauges. Then above his head, over the window glass, Deneen saw a row of instrument faces.

"Ruth!" he exclaimed. "Look at those things. Instruments of some kind, circular, the symbols and pointers covered with glass! Ruth! Don't you feel the world opening up? These rocket creatures are people, our kind of people—I don't care where we are!" His emotions subsided. "Well—it looks as if they left us in sole possession. Let's explore this, from end to end. We'll let those levers alone for the present.

The box-like attachments to the wall yielded the first surprise. Deneen, tapping around on the surface of one, struck some hidden spring, and a door swung silently open. Within, arranged in numerous tiers, were tiny packages. "Chewing gum!" said Deneen in surprise, as the neatly-wrapped packages bent in his fingers. Ruth laughed as she tore the covering. "Paper, Alan—paper!" Then—"shall I taste?"

"No," decided Deneen. "Don't take a chance. Well—we know one thing. The rocketeers chew gum." He shook his head in puzzled amazement as they continued their search. "What about baggage?"

At the rear end of the ship, in a compartment closed by simply latched doors, they found the baggage. They were both rather excited now. "Why—these are suitcases and beautiful little handbags!" Ruth cried.

Deneen went to one of the square windows in the larger compartment and looked out. "Thought I heard a yell," he muttered in quick uneasiness.

But the beach was bare. By pressing his face into the window sashing, several inches deep on the inside, he could see the dead man by the water. The waves were beginning to break over him. Dull slaps came through the flooring on which Deneen stood. Water was beginning to fill the gouges made by the rocket gases, and hit the nose of the ship.

"Alan!" Ruth called from the baggage room. "Look! Rouge! Face rouge—a mirror—in one of these. Two slabs of that gum. And a handkerchief!. A scented handkerchief!" She came to the doors, her face flushed with excitement over the marvel of it, a sparkle in her eyes—a woman clad in a wolfskin robe, holding up a filmy white square of cloth.

But Deneen did not stop to properly grasp the full meaning of that scene. An uneasiness troubled him. "Say, Ruth," he called as she turned back—"let's get closer to that door. Come on!" Some note in his voice caused

her to drop the black satchel she had taken down from orderly racks. She had heard Deneen's voice calling like that through months of incessant vigilance, and she ran out at once, a supple and alert figure, her gaze studying the man's face.

"What's wrong, Alan?"

She followed him without question, casting an anxious look toward the windows.

The beach was bare. Deneen stood before the oval doorway, his piercing vision ranging slowly over the forest line beyond a ragged border of trees and grass. He slung the longbow back across his shoulder. "Don't get away from that opening," he instructed. "I just want to look at these handles—get some idea how they drive this thing."

But the two levers, rigid at the near end of their respective slots, were not informative. Deneen shoved slowly, but could not budge them.

"Liable to bust something if I push hard," he said, opposing an impulse. Then—"Hello—what's this?"

To the left, on the side wall of the beveled framing about the front windows, was an array of buttons, foregrounded on a greyish white plate. Below each was a symbol, a crisscross of lines evidently in the same general mode as the markings on the instruments above. Deneen pushed one button and Ruth said quickly. "The lights, Alan! See!"

Deneen looked around. "Well—well! This is like home." He tried various combinations of lights. They were imbedded in the ceiling, along the walls. "Those walls are plenty thick," commented the man. "Room for batteries in there, and whatever system feeds the rocket gasses to those slots along the hull, though what good side-slots are is beyond my earthly dullness." He pushed the final button, a large, protruding one. Apparently nothing happened. About to examine the levers again Deneen's attention was drawn by something else.

There were dents in the smooth surface of the board upon which his hands had rested—long scratches. And a smear of some reddish substance that caused a setness to grow upon Deneen's face. He slowly moved back and joined Ruth. "Let's step out," he said casually, and gazed as he moved out of the ship at another red smear near the door-framing. It had suddenly come to him they had forgotten the drums of the night before, and the dead man by the water. "Let's look around the beach awhile," he decided.

But his uneasiness was apparently unfounded. Not a sound save the silky tearing of the waves along the shore marred the morning air.

"This beach has no tracks on it, but our own!" Ruth noticed. "How could they have left the ship, or been taken from it?"

CHAPTER IX

Power at Last!

DENEEN did not answer for some time. They moved about, occasionally stopping to gaze, like wary things of the wild, along the line of forest. "That other ship," speculated Deneen. "Circled around about here. It seemed to be going that way when it dropped out of sight behind the hills. Now, if this ship fell, and stayed where it fell, the other was probably following whoever or whatever captured and killed the passengers and crew. Following the drum beaters. That's the best guess I can make."

"But why aren't there signs of the fight, of the struggle?" asked Ruth, keeping close beside the man. "The beach is clean."

Deneen stopped.

"I have it. The tides! This ship fell just after sunset last night. Between then and the time of our arrival the waters washed up to that kelp line and back at least once, perhaps more than once. That dead man was left there by the waves as the tide receded. The fight, or whatever happened, must have taken place when the tide was down, for there's the rocket gas marking near the bow. Even though this stuff they use is mighty strong, it couldn't have burnt the sand through two or three feet of water."

He faced around, reconstructing the scene in his mind: "They're falling—why—we don't know. Then—just before hitting, the pilot gets control of the thing and breaks the shock, but just about in time for the ship hits with enough force to jar the door open. Maybe the passengers pile out. The rest is hard to figure, because we don't know about the drum beaters. But after whatever happened, the ship is left empty. The sea comes up, washes that body about, and perhaps others, but it can't move the ship. This beach has a gradual pitch, and at high tide the water did not reach the door edge. We'd have found traces of water in the interior. Then the tide goes down, leaving a dead man at a certain spot, and the beach clear of all marks. It's coming up again when we arrive. That's a fair picture of it. I'd bet on it!"

Ruth watched the man's bearded, strong face and saw again the Alan Deneen of their first moment of meeting—Deneen, the All-American halfback, a quick thinker, a man with a gift of speech that backed a splendid body.

He had become morose, grim, strong as the wilderness. But now little fires of animation were in the grey eyes. "That's it, Alan!" the woman said, a glory rising in her at the easy trip of his words. The spirit of them had not been killed—it was there, human and alert and questioning, as if the presence of that long streamlined hull had given them back their civilized heritage.

"Alan!" she added. "That handkerchief. I took it with me!" She reached into the wolfskin. "A perfumed handkerchief. We can't be off the earth. We can't be. Only a woman of *our* race could have use for such a thing. That man, a ship with glass, instruments, paper—of course this is our world!"

Deneen put his arm around her. "Let's get back to that beggar near the water, Ruth, and take a good look at him. I know," he added, as they began to walk over the rough sand. "Since that first night on the mountain, when we first saw men, I've sworn to myself we could not be in another part of the universe. Trees, beasts, birds—everything except that freak vegetation spoke of our own globe. And last night I fancied the moon had a face, the old face. But what about the vegetation and the hoppers? What about *that?*" He pointed to the sun, a great red ball low down over the forest.

"And these clothes." He stooped and dragged the dead man away from the greedy, itching tide. "Feel these clothes. Like—what are they like? Like metal, pliant, unearthly metal. And that ship, Ruth. The terrific force of the rocket gases, scarring and gouging the earth—the

mystery of how a thing like that can move, right side up through the air at the clip those fellows make."

"Look at his mouth," said Ruth in a low tone. "How small it is! Why—he scarcely has a mouth at—" she stopped suddenly, her eyes on the kneeling Deneen.

He was staring past her. She could see the veins cord in his throat.

Like a startled fawn the woman turned and fell back slowly. The forest line was alive with skulking figures—figures that galvanized into quicker motion as Deneen rose from his knees.

Somewhere in the trees a drum began a monotonous beating. Another. The woman cried out, choked terror in her voice. The line of hostile figures formed an advancing crescent, ringing in the ship. There was no way of escape.

DENEEN'S shoulder pushed Ruth aside. "The ship! Run for it!" As she turned and sped toward the long hull the twang of a bowstring sounded behind her again and again. Ruth slowed and looked back. Deneen was running now, catching up to her. He swung her along, and fairly threw her through the oval doorway of the rocket ship. The woman twisted out of his way. Deneen vaulted in, pivoted, and knelt in the oval. The great bow bent to the pull of his arms. The sinewy string sounded its deep, vibrant note.

Ruth reached up to one of the upholstered chairs, and then to her feet. She was faint with dread, a momentary reaction that passed. Through one of the windows she could see the running horde, closing about the ship. Short, shaggy men, animal-like men, in a confused crescent wave. She saw one clutch at his chest, into which had plunged a long arrow. Another! The wounded and dead created little eddies of confusion, but the momentum of the living wave was too great for Deneen to halt. The frantic woman turned to watch him, kneeling to right of her, sending the deadly arrows home. She looked around for some weapon, some means of aiding him. A bedlam of yells were in her ears—the steady pound, pound of distant drums.

Then the ship jarred to the shock of rushing bodies. She watched Deneen drop the bow, flail with his fists at arms and hands and clubs that appeared in the doorway, then spring erect. He caught the curving frametop of the oval door, with hands on the opposite sides of a pointed hinging, and suspended by his arms, he kicked savagely with both feet at a brown, twisting mass that was forcing a way into the interior. Once, twice, he kicked, then fingers fastened about his legs—a thrown club struck his stomach, and Deneen came down, growling like a wounded bear. He slashed himself free with his fists, tried to rise, and staggered back into the open compartment circled by the driving platform.

Ruth saw things clearly, like a picture in a frame. Bristling spears were in the opening now, and the brownish writhing mass was entering again. Deneen turned, without thinking, in a blind search for something to strike with. He jerked at the levers.

A long deafening shriek of escaping gas rent the air. Ruth was thrown across the aisle, and back. She clutched at a seat. The floor beneath her seemed to tilt and drop and twist. She got confused glimpses of Deneen holding grimly to the levers—glimpses of a brown shape clutching the door-framing. Then the ship struck with a terrific jar. The woman's grip on the chair was broken and she was thrown violently to the floor. A great splashing mingled with yells from outside—water was pouring through the door, sweeping over the figure still glued in the entrance.

Ruth turned over. A dirty green wave came down the aisle, slapping her as she rose. But through the spray, she saw Deneen leap from the lever-platform to the door in one jump, his brawny torso twisting to the drive of his right arm. An iron fist smashed into the face of the brown man in the door, who went out backward, swirled in the mass of water entering the ship, struck alongside and was gone.

Deneen floundered back to the levers. The floor was knee deep under water. Deneen pushed the handles out, repeating his first experimental move.

A hoarse roaring churn drowned out the cries from outside. The water-logged ship lifted at its rear and spun, and for a moment the water entering the doorway was a solid wall. Ruth felt a crushing pressure in her ears. Then they seemed to flip around like a chip. The woman was tossed and thrown against the seats, into the waist-high tumbling water. It swept her back along the aisle. With a great effort Ruth reached out and edged between the seats. The water was pouring out of the door now.

When her vision cleared she saw the sea far below, the forest line receding, then a strip of beach where little black figures danced. Praying silently the woman held on.

Deneen gradually controlled the ship. It ceased its sudden jerks and spins and dips. A steady fizzing, like a thin, continuous shriek, came to Ruth. A low roar of wind came through the open door. Above these sounds she heard Deneen calling. Cautiously, slowly, she made her way to him, sloshing through the shallow water. Her body ached dully from the falls—the pounding she had received. "Yes, I'm all right," she answered his quick question. Then, "Alan—we're going higher!"

"This thing is simple!" reassured Deneen loudly. "So simple I made a mess of it. The right lever lifts her up—not only at the front but right up bodily. The left pushes her. Easy. See?" He pressed the left handle further along its marked slot.

Ruth lurched. The thin shrieking grew sharper. Through the open door, on the face of the waters below, appeared a dark dot, a smear of driftwood that moved backward out of view with a quickness attesting to their speed.

"Boy—but this thing can go!" Deneen was feeling the reaction. After a time he calmed down, though still holding the levers with grim tension, like a novice at the wheel of an earthly automobile. "Sure you weren't hurt, Ruth?"

"No," she lied, her eyes on his hands. "Alan—I thought—"

"We were done for," he interrupted calmly without looking around. "So did I. Well—we know what the drum beaters look like now. Funny about these levers," he continued, purposely keeping up the flow of conversation. "I couldn't budge 'em before. Now they move as if on bearings." He was still very rigid—gazing directly ahead, or shifting his glance to the row of instruments above the glass. "We'll be all right, Ruth," he reassured. "We'll be all right. Must have been that button—" nodding his head to the left. "The big one."

Ruth pressed close to him. "But where are we going, Alan? We have no food—no fire—can you stop this thing, and bring it to earth?"

"That's just what's worrying me!" grunted Deneen. "These levers only move forward and back. Watch. Hold onto me. No danger. If this bus was the tipping kind, it would have spilled us long ago."

RUTH held on. Deneen's left hand drew back, and they were pressed against the platform by their momentum as the ship slowed. He pushed out, and Ruth clung to his brawny shoulder as the ship accelerated. "Now this one. And watch those instruments."

His right hand came back slowly, and Ruth felt a tingle in her stomach pit. She turned her head for a glance out of the open door. The water below seemed to be racing toward them. Deneen pushed the lever out, and the floor pressed the soles of their bare feet. "Did you notice those last two dials?" asked Deneen. "One is an altimeter, the other a speedometer. That's a start. That central one—the big one, puzzles me. Watch that red line shift, away from or toward the black hub in the middle."

"But where are we going?" asked Ruth.

"North," said Deneen grimly, twisting to look for the sun. "Move out, Ruth, slowly. Keep away from that door. Take a look from the windows. All I can see from here is sky and water."

He listened to her feet splashing in the pools of water behind them, as she obeyed instinctively. He was still very rigid. The levers were not pushed to a fifth of their slot length, but the speed they were making was terrific. He could see wisps of greyish clouds ahead of them, swoop over and past.

"If something goes wrong with this thing, it's our finish!" he muttered. "All I can do is stay here like a fool. Wonder what keeps her on an even keel? And that center thing must be a compass."

Ruth came back. "The shore is almost out of sight, directly behind us. The sun is a little to the right. There's a window in that suitcase compartment. On both sides nothing but water, Alan. Not a trace of land."

"This must be open ocean," growled Deneen, undecidedly. "And how big an ocean we don't know."

"Alan—if something goes wrong, over water, miles from shore—"

"We're done for," admitted Deneen. "But what shall I do? Head back? How? I don't know how this thing turns. Wait!" he suddenly cried. "Wait a minute!" Twisting to look at the woman, he had felt the levers turn in his hands, and the ship joggle queerly. Slowly, cautiously, he made experiments. "Like those motorcycles we knew," he informed tersely. "Double principle like an airplane stick. Only here you twist your fist. Watch."

Holding the levers motionless, he twisted his right hand. The ship veered smoothly. Reversing the grip turn, it veered the other way. Ruth stepped past Deneen, and pressed her face to the beveled glass over the driving platform. Out of the corner of her eyes, she saw whitish smoke spurt out from the side each time Deneen twisted his right hand. She called excitedly.

"Sure!" agreed the man, his stiffness beginning to pass. "On the twists one lever turns her, the other lifts and drops the nose. Right twist of the right hand sets off the gas at front, maybe at rear, too, but on the opposite side. I'd bet on it. Left turn of the right hand sets off the other front and rear sets. Simple as A B C. Now the other. Hold on."

Ruth held on. Deneen's confidence grew. "Right twist of the left hand sets off rockets at front and rear, top in front, bottom at back. So we head down, smooth as silk. Left twist of left hand turns on gases front and rear, bottom at front and top at back. So she noses up, like a dream. Now while twisting, in any combination, you can pull or push on the levers, increasing or slowing speed, gaining or losing altitude. "Boy! O, boy—what a rig!" he marvelled. "What a rig!" He had forgotten everything but the feel of tremendous power beneath his hands. "This thing is foolproof. Anybody can drive it."

"You can turn now, Alan," the woman reminded.

"I don't know!" Deneen growled his indecision. "Why should we turn? For months, Ruth, we've headed north. Like animals we were, at the end, but going north. Following these ships. I heard voices in my brain, sending me on. We crossed hundreds of miles on foot. Now with this thing, why should we go back?"

"I'll look around, Alan," she replied calmly. "Whatever you do is all right."

"Keep away from that door!" warned the man, turning to watch her go back down the aisle. A wave of tenderness swept over him. "Maybe I will, Ruth, turn back to land for the night. Don't worry." A frown creased his brow as he again looked ahead, and up at the instruments over the window. "This water can't be bigger than the Atlantic was, or in extremes, the Pacific. And if I give this bus all the levers can go—" he whistled softly as a trial push increased the thin high shrieking, and the wind roar in the doorway to the left. "But what makes 'em fall like they do? What supplies the gas discharge? How long will it last at high speed? And how in the devil," he muttered, "does it keep the floor below, and the ceiling above, without a tilt? This hull is as round as a cigar."

CHAPTER X

A Message!

THE solution came to him after a time. Ruth was coming back. "Say," called Deneen. "Hold these levers a while. I want to look at something." He turned and voiced surprise. The woman was dressed in a pale grey, clinging uniform.

"I found it in one of the larger bags in that compartment. There are others there too." She was smiling at him, the mass of her hair fringing a tanned oval face. "They'll fit you. This material stretches like rubber. It's an amazing thing."

"Hold these levers, like this," instructed Deneen. He changed places with Ruth. "No danger. Just hold them." Passing a hand over her shoulder, he shook his head wonderingly. "Me for this stuff. On or off the ship. I've been thorn-scratched long enough."

"Alan!" Ruth called after him without turning her head. She was holding the levers rather tightly. "There's a lavatory on the right, past the racks. Some liquid soap."

"If there's a razor, I'll shave!" he replied, edging very cautiously to the open door. "Don't move those levers!" he warned. Lying down on his stomach he inched forward till his head protruded through the oval door. The wind tore at his hair. He stayed in that position for some time, looking along the ship's hull. Below him, far down, spread the flat surface of the sea. The ship was as steady as if it rested on solid land. Deneen inched back, and rose. He went to Ruth.

"If we get to any of those fellows, I'm going to shake 'em by the hand, provided they let me do it. I don't care if they have got bald heads, small mouths and shoulders. They've got brains, and plenty of them. Know what keeps this thing on an even keel?"

She shook her head.

"Those slots along the side. Soon as she tips, before we could feel it, gases kick out. Automatic. This thing can't tip. You can turn it at any angle without banking at all. Once I block that door, just in case, we're as safe in here as in—well—as we were in the woods, anyway. Hold those levers."

It seemed to Ruth that he took a long time in returning. The sky ahead was murky. Her arms ached with tension as she held the levers. She smiled her relief when Deneen's voice sounded behind her.

"All togged up." He took the controls from her. Ruth stepped back and admired. The man's powerful body was encased in the greyish material she had found in the bigger room.

"This stuff is a tailor's dream," he commented. "It fits anybody, and doesn't bind at all. And I ducked my head plenty. I feel clean. But not a razor."

"Alan." She was very serious. "What can it all mean? Those hairy men—can there be men like that off the earth? Weren't they savages—the sort we read about back in New York?"

Deneen watched the sky ahead. "Storm!" he muttered. "We're heading right for it. Those fellows, Ruth," he continued, "were like no race of earthly savages. They looked like reconstructions of the Neanderthal man. They had no bows and arrows. Stone spear tips. I saw one two inches from my face. The riddle is deeper than ever. Men below the earthly standard, and men, mechanically anyway, pretty well above it. Watch those clouds," he continued. "They look ugly. Wonder if I'd better go over, in, or below 'em?" he asked casually.

She pressed close to him. "I understand, Alan. You're talking more than you have for months. To keep my mind off things. You won't discuss the real question. But how do we know if these rocket men will be friendly? They shot at us back on the mountain by that other sea. They nearly killed you and left you to die!"

"That was an accident. The more I think over what happened, the more I am convinced that those fellows on the mountain were pretty well scared. Remember what those hoppers looked like, Ruth? Enough to turn anybody's head. And the mountain slope was alive with them. The men just shot rockets on general principles, and caught Gregory when he jumped into the midst of them."

Deneen's left hand pushed out and twisted. They veered away from a mass of dark clouds directly ahead, accelerating speed. Lifting the ship's nose, Deneen ploughed through streamers and bunches of the dark vapors. Ruth clung tightly to his shoulder. The sunlight came again to reinforce the illumination from the ceiling and walls. They both felt a shortness of breath.

"Hold these levers like this, Ruth," Deneen instructed. "We're above the clouds. Flying is a baby's game in this thing. I want to block that door. Just noticed the way it's jammed on that single hinge."

Ruth kept the ship at her altitude and pace. After a time the feeling of giddiness passed. They were shooting over a tumbled, greyish world of vapors, at frightful speed to judge by the wisps and patches of higher floating cloud that plunged by, against the window and off.

She could hear Deneen grunt behind her. He was pulling at the jammed door. Suddenly the thin, high shrieking of gases and the wind roar dulled. She turned her head to see the aperture closed. A neat oval panel had fallen into place, swinging from a single hinge at top of the framing. Deneen kicked a pin into place at its bottom.

"There you are! Snug as a nest." He relieved Ruth at the controls. "No—I believe they wouldn't harm us, the builders of this boat, Ruth. That affair on the mountain was out of the ordinary. Maybe they left us not out of malice but fear."

"I was too dazed to see, Ruth said slowly. "I was afraid you were dead. When I looked up, after bending over you, they were pushing Uncle George through a door, something like that one, probably. Jim was nowhere in sight. The ship started almost at once, lifting straight off the slope. It seemed they tried to kill you."

"OH, they tried, all right. Probably took us for enemies. But whatever they shot me with wasn't an improvement over earthly artillery. My head was hit by something big—too big to cut a little groove. But a shell, any large missile, would have killed me, not glanced off, if it even approximated the velocity of the projectiles we knew in the world of disarmament conferences."

"Perhaps these men have never waged war," suggested Ruth, falling in with the man's mood. Alan Deneen had truly come back, speaking through the bearded face of the usually silent hunter with whom she had wandered for apparently endless days.

"That's an idea," said Deneen. "But what are they doing in *this* world? War is the only thing this world knows, Ruth. Every living thing has either fled from us or tried to kill us, our own kind as well as that jerky breed back south. How could these men have evolved here without combative instincts? By the beard of Moses!" he muttered, as if struck by a thought. "Not if they came from that moon! Not if they came from that moon, Ruth! That hunch of mine is growing!"

He almost let go one of the levers animated by the thought. "I'll bet those fellows do come from up there! How else explain the signal we saw, except as the work of some mighty intelligent and mighty powerful race of beings? And here, under my control, is another instance of intelligence and power. Why shouldn't there be a connection? There doesn't seem to be any other. The slice of this world we've seen is utterly primitive, and that goes for those playboys who attacked us this morning. Yes, Ruth," he said confidently, "this ship and this miracle cloth are from some other part of the sky. And I'd rather

mix socially with the emigrants than the natives. We came from somewhere else ourselves."

"But are you sure we are going north now, Alan? And what if the ships take another course over this water?"

Deneen stiffened a bit. "They don't," he remarked trenchantly, looking at an angle through the observation window. "There's one of 'em now, sailing pretty, off to right of us. And it's closing in."

Ruth moved slowly to the window. Floating over the ragged cloud floor that sped along below them was a suspended, cylindrical hull, apparently barely moving with relation to their own ship. Its nose was edging around. Deneen did not shift the levers. Rigid, the grey-clad woman watched. The drifting hull came closer.

"Alan—the windows! See the faces! The thing is full of people!"

Deneen shook his head. There was a queer turmoil in his brain. At first he attributed it to the altitude. But the inside of their ship seemed to hold intangible strains, invisible presences, voices, querying voices that were inaudible to his ears. "Ruth!" he said, rousing himself. "Wave your hand!"

Ruth waved, a hesitant smile on her features. The faces in the other ship remained at the windows, a long row of them, pale faces topped by bald heads. She saw this detail as the long hull drifted quite close, and held its position not twenty feet away.

"Alan—they don't respond. They just stare at me. But I hear voices—voices in my mind." She stepped back suddenly. "Alan—I'm afraid!"

Deneen fought for clear thought. "Get that bow of mine, and the arrow-quiver," he instructed tersely. "I put 'em on the third seat, right side. Bring 'em here." He shook his head again, a physical response to the strange, strained turmoil in his mind. It had increased as he spoke to Ruth.

The woman came back. "Loop that quiver over my shoulder," instructed Deneen. "Put the bow by the door. Now, hold tight. I'm going to the other side of that fellow."

He waited a moment, then pulled rather suddenly back on the left lever. The upper part of his body jolted violently forward, over the driving desk. Outside, the long hull to the right shot ahead with amazing speed, trailing its plumes of white vapors. Deneen twisted the right lever, holding it motionless along the slot. The ship ahead and to the right crossed over to their direct front and off to the left. Deneen pushed the left lever out, fighting to keep his balance as the ship accelerated. "These fellows slipped up on the way they fixed the shifts!" he muttered. "Push and fall back—pull and go forward—dead wrong."

The ship ahead was approaching again, to the left now.

"Ruth, come here and hold these handles!" called Deneen. "Don't move them at all. I'm going to open the door, and talk to them. Make signs, anyway."

"Alan!" Ruth was afraid. "Why can't we turn around? These people are strange! Perhaps they are not people at all. I feel as if they are casting a spell over me—I feel presences around us."

"Telepathy," guessed Deneen. "I'll bet on it. They're trying to talk to us, that's what they're doing. Hold these levers."

The door was hard to open. Deneen's great arms moved it up till the whistling wind broke through a growing slot, and the pressure eased. He pushed it up till it hung over its single pin, and rammed the end of his bow against it, holding it. The wind nearly blew him back. But he forced himself a bit closer to the doorway, and waved his free hand. Directly opposite now, the ship sailed along, occasionally struck by cloud wisps moving with terrific speed. The row of faces remained in the windows. Deneen kept waving. After a time he saw hands move against the glass.

"Sure they're friendly!" he called gladly to the anxious woman behind him. He tapped his chest, indicating himself, then the ship he was in. Repeating the signs for emphasis, he paused a moment, then indicated the other ship, concluding the whole procedure with a shrug of the shoulders and a questioning expression. "Where are you people going?" he yelled for his own satisfaction.

THE faces remained in the windows. But Deneen saw, clearly etched in his mind, a tumbled range of mountains, a river valley opening to a sea, and narrowing to a gorge further back in the hills. He saw faces, an agitation of faces, that were not part of the scene registered upon his eyes. Saw one face that stiffened him.

Stepping slowly back, he let the door drop. The roar of the air and the rocket gas shriek dimmed at once. Ruth was asking anxious questions.

"Tell me—did you see anything—think of anything, just now?" Deneen's voice was tense.

"Yes," she replied as he took the driving handles from her. "I saw mountains, smoke, faces."

"That settles it," decided the man. "These people are trying to convey something to us. That's nothing at all," he continued as the woman protested her uneasiness. "We ought to expect anything in this world, Ruth. But there's something else. That place I saw just now, I've seen before. Back in the jungle, when the first pictures came to me, when I thought I was going crazy. And just now I saw your uncle's face again. Meredith, sure as life!"

The woman looked out of the window at the long hull outside, foregrounded on the cloud mass that scudded by below them. "Alan—can it be—?"

"Why not? These people, this sort of people, carried off Gregory and your uncle. They can transmit thought. Some of them have been trying to tell me that Meredith is alive, trying to tell me where to find him. Ruth, I know it sounds fantastic. But everything's been so since we woke in that wrecked laboratory. Telepathy isn't really strange. It's the best, the only explanation. I was driven, Ruth, driven in the jungle. We never would have moved as we did, every day, of ourselves. Someone drove us on!"

The uneasy fear left Ruth's face. "Perhaps Jim and my uncle are safe, somewhere beyond this water. Alan—we may find them—talk to them again!"

"And get an answer to lots of questions." Deneen's right hand twisted the lever it gripped, veering the ship back toward the other, that had widened the gap between them. His glance, going instinctively to the instruments above, noticed the movement in the larger central one.

As an hour, two hours passed, he tried experiments. Sending the ship to right, in center of the face a red line would creep toward the circumference. "Say, watch that," he finally instructed the woman. "My first guess, that it

was a sort of compass, was probably right. That's what guides these fellows. They're holding that red liquid right in center."

Ruth was at the windows. She was calmer now. "They're increasing speed, Alan. And I seem to hear voices saying hurry—hurry! That's fancy, of course. They can't talk English."

"Well—I hear the same thing," replied Deneen. "It's just the thought, and we shape it into English ourselves. Of course we may be all wrong. But I'm sticking with those fellows." He pushed the left lever gradually. The other ship kept receding. Deneen pushed harder on the driving handle, his face grim. Cloud masses, upthrusts from the solid floor of vapor below seemed to leap at him from the distances ahead, and vanish. But the ship's interior was absolutely free from vibration of any kind.

"This," observed Deneen, "is a cockeyed world. Everything is of two kinds. These levers are placed wrong, because the driver has no support to check the movements of his body when he slackens or increases speed. A simple thing, that any ordinary human would have provided for, totally missing. But the ship itself is a marvel beyond human powers of engineering.

"If we're not going close to three hundred miles an hour," he said a moment later, "I'm seeing things. Those clouds don't pass—they dissolve."

Ruth moved down the aisle. The grey suiting she had found included bootlike extremities that sloshed through the water pool by the door without admitting a trace of dampness to her enclosed feet. "Alan!" she called back. "The other sun has risen. See the color on the clouds?"

"If we're heading straight north, both suns will be traveling closer to the horizon behind us in a few hours. We can't be too far from the pole of this globe right now."

"They are close to the horizon, Alan," Ruth answered from the rear, her voice animated, though a bit forced. "I thought it was due to our altitude. How silly!" She came back along the aisle, peering through the front glass to the other ship. Deneen had cut down the distance between them.

The cloud buttresses, pinnacles and peaks protruding from the mass below took on fancy colors as time passed. Deneen twisted the left lever and pushed it out, pointing the ship's nose up, and accelerating its speed. He pushed out with his right, lifting it above a higher bank of vapors, following the example of the craft ahead of him. "This is a cinch, Ruth," he muttered as she came to stand beside him. "Practically perfection."

"Alan—I hear those queer voices again. Not such a turmoil now. Clearer."

"So do I. They're still saying hurry, and something else."

"Danger!" she breathed. "Danger! I heard it clearly."

"There's no doubt now, Ruth," said the man soberly. "These repeated things can't be coincidences. Well, I'm with them. We should be a bit accustomed to danger by now."

"The clouds are breaking!" Ruth said quickly, pointing. "Look! The sea—far down! Land—Alan! Shore. Mountains!" Her voice was peaked now. "Mountains, Alan!"

"Right!" replied the man calmly, and watched the ship ahead nose down through the breaking clouds.

"They're heading for that land, Ruth. Here goes."

CHAPTER XI

Into the Maelstrom

HOLDING tightly to Deneen's shoulder, Ruth watched the black line of shore creep toward them, opening, spreading into detail. The flat sea was clearly marked out from the land that rose abruptly, shouldering the sky directly ahead. Valleys appeared, long gorges, separate peaks, a few touched with streaks of snow. But these were in the background. The nearer hills, not so lofty, moved below the ships. Deneen tipped his craft so that it rode bow downward in the sky, giving him view through the beveled glass. "This is mighty awkward," he muttered. "But she rides. Why didn't they set this desk further back and give view below?"

He veered the ship abruptly, then soared with it after the one ahead in a circling climb. The sea-line shifted slowly below them. All the panorama of the smaller hills revolved as on a gigantic turntable. Deneen, tense as he was, yet noticed the two suns when they swung into his line of vision. Separated by a wide space of sky, they were but a few degrees above the horizon, and the red orb, gigantic in its setting mists, was no more blinding to his vision than the moon of the night before. Deneen realized that most of the short day had passed.

He swung his gaze back to the ship outside. It began dropping, without spiral or flourish, and Deneen, tensing his stomach muscles, pulled in the right lever. Ruth gasped and clung to him. They sank like a plummet.

Deneen watched the altimeter. A short hand swung back and was moving toward zero. And the red line on the central instrument was now far out from center, vertically inching down toward the lower edge, a bit to the right. "I don't understand these things," muttered Deneen. He tipped the marvelously responsive ship again, to get view of the ground below. Scudding aslant their field of vision was the other rocket ship. Deneen twisted his ship, and dropped it faster. The hills opened up, passed below them, clad in sombre greens and browns. Ruth suddenly clutched the man's shoulder.

"Alan!" Her voice was strained again. "That place! The place I saw. The river!" Deneen's jaw set as he kept the nose of the ship down in a long dive. They could hear a thin scream of air from the door he had forgotten to lock at the bottom. A bit to their right the tumbled land came to the sea, and at one place a wide gash marked the outlet of a river valley. The gash narrowed to a thread further in among the higher hills. In every detail the view fitted the mental images they had seen.

Deneen halted the dive, picking the ship out of it and shooting up, as if they were thistledowns in a high wind. "No use going in blind," he said painfully to the gasping woman. "There's something queer going on down there. Four or five of these boats are circling over the lower valley. The place is full of smoke."

He watched her face close to his shoulder. "You're ready to chance it, Ruth, once we look the place over? Land and see what's what? Or shall I head into the hills? We could camp somewhere, and scout back to this place on foot. But I hear those voices," he con-

tinued. "A strange tumult in my brain. Calling—calling. Like a great far chorus of despair."

"Whatever you decide, Alan," the woman said slowly, her face troubled. "I—don't know what to say. I hear the calls, too. It's uncanny."

Deneen veered the rocket ship. He swung in a sharp curve, and for a time headed straight toward the horizon of sea and sky where the low riding suns, one of them setting, sent shafts of red and blue light through cloud masses in the distance. Then swinging again he headed down for the mouth of the valley below.

Smoke rose and swept to meet them in billowing columns. Greyish smoke. Through the rifts they caught glimpses of flame. Deneen, his jaw set, nosed the ship down and through the valley, lifting it up at terrific speed, barely missing another cruising hull that appeared and vanished like a wraith in the twist of smoke columns.

"Whew!" he whistled. A sensation of heat stifled him. They were riding high again. "Tell me, what did you see?" he asked tersely. "To me, it seemed as if the woods on both sides the river were burning. Closer to the water, on the right, were scores of ships like these in neat rows. At one end of this landing field, or whatever it was, rose a spreading building of yellowish concrete, or stone."

"Yes," said Ruth quickly. "And near the river mouth, along the shore line, hundreds of boats or rafts."

Deneen nosed up, and to the right. He swung inland. "I'm going to get far upstream, drop low over that gorge, and follow the river out. That way—" he suddenly lurched, then pushed out at both levers. The ship had dropped with sickening suddenness, and for a moment Deneen had the clear impression that the power was dead beneath his hands. A hard jolt that threw the girl away from him, and the renewal of the rocket screaming, with an intangible sense of control in his fingers, loosened the hand of gripping dread which had fastened about his heart. "Whew!" he whistled again. Sweat stood out in little globules on his brow. But his voice was quite calm as he lied.

"AIR pocket, Ruth. Some downcurrent from the higher slopes to our left." Ruth said nothing. She was very pale. Deneen wondered if she knew. The rocket propulsion had gone dead. In his mind's eye Deneen saw again that first ship that had fallen on a mountain thousands of miles behind them, and another that had dropped to the shore of the northern sea. There was something wrong with the marvelous craft. He pushed tentatively upon the levers, and was reassured by the lift and drive of the ship. It was manageability perfected.

"Just an air pocket," he repeated, heading for the black thread of the gorge below. Through the right windows could now be seen the open sea. The cloud banks in the distance were lower, obscuring the blue sun. The red one had set. Below them the hills were black and dull brown, and the river gorge a twisted thread. Deneen went lower.

"What are those things on the left side, down there?" he asked, anxious to divert Ruth's mind from the incident just passed. "See them on the slopes?"

"Smoke," she answered, peering through one of the windows. "Smoke columns." Deneen dropped steadily. The earth rose in gigantic cliffs and buttresses to the left of them. "Men, Alan!" the woman suddenly called. "Hundreds of them! Going down the mountain. See—on that level—hundreds of them."

Deneen swung down. He edged by the vast slopes. "The drum beaters, by Methusalah! Those trails are full of them. Going down! Down toward the river!"

He veered sharply away from the mountainside, and cruised over the narrow cut of the gorge, turning fully and dropping still lower. Directly ahead now, beyond a few gradual curves, the valley widened to its outlet on the sea. The smoke from its lower ends was a drifting grey cloud against the background of water, and Deneen caught glimpses of the circling rocketships, still hovering over the rows of their fellows on the ground. Nearer, in the narrower part of the gorge, more smoke was rising, in thin, white streamers. Deneen swept over once, then increased speed, and circled back to repeat his whole procedure. Keeping his eye on the moving red line in the center instrument, he asked tersely.

"Ruth—did you see below? A city! Pillared buildings—connected by arches, a long white walk along the river—fires—men!"

"Yes, I saw," she answered. "And at the lower end a machine like a crane, with other men around it. And I hear the most anguished calling in my mind."

"Danger!" muttered Deneen, reckless now, cruising very close to the mountain face. "The drum beaters are attacking that city. That's it! The moon men, or whoever the ship builders are, are being wiped out. Their ships are back in the wide valley, being burnt up. They're trying to block—"

"Alan!" the girl cried. "The men near the crane are running away! Look—in the bigger valley—thousands of those others coming up!"

Deneen sank down in a long glide. Details of the drama began to stand out clearly. Below them was an incredible city, or section of city. Over wide streets, in courtyards back of monstrous columns, moiled a mass of humanity, beginning to break and flee, in thin streams, toward the wild chasm upriver. Further down, below an outjutting of material that looked like a wall, which narrowed the gorge to little more than the river width, opened the wider valley, full on both banks with a restless, advancing, smoke-wreathed horde.

Deneen heard calls in his mind, despairing, wild calls. "Walor! Walor!" like a chanting repetition. "What can *I* do?" he asked, as if to a tangible plea. "Look, Ruth. That compass—it shifts the red line every time I head away from that city. The red creeps toward that city!" He felt sweat all over his body. "What a mess! I ought to get down there—do something!"

"Alan—look at the mountain, on the right!" cried Ruth. "A face! A man's face, carved in rock." She lurched as the ship dropped. "It looked like—Alan!" she suddenly screamed, trying to go to him. "What is the matter?"

Grim-lipped, the man moved useless levers. They were dropping with sickening speed. The rockets had gone dead again. Deneen jerked the handles frantically. But the gases did not start. The river seemed to leap toward them—a jutting wall—a confused mass of brown people that scattered too late.

DENEEN seemed held in a clamp. His left arm was around Ruth, holding her close; his wide, unblinking gaze on the upshooting confusion of men and river and outjutting wall. The accelerating speed of the fall kept him back from the desk, and his right hand, still firmly gripping the lift lever, had drawn it back to the edge of its slot. When it seemed that faces, hundreds of staring wild faces, were against the very glass in front of him, his muscles jerked the levers by purely reflex action.

Blindly, from habit, he pushed out. Then he ducked, clasping the woman in both arms, curling over her as a shock threw them both off their feet, in instinctive effort to save the soft form he loved from the crashing bedlam about them.

The rocket gases had caught with a shrill screaming. Water and earth sprayed up from the tortured ground. The long hull of the ship seemed to strike some invisible barrier, and go glancing and skipping horizontally down the gorge. The violent shock of arrested descent, nullifying the automatic stabilizers, was rolling it momentarily from side to side. At full momentum of that terrific slide it struck a mass of squat and skin-clad men pouring around the edge of the wall, and a crane-like machine some thirty feet from the river.

The great grey bulk ploughed through the barrier as if flesh and bone were paper. Its rear end struck the crane-like machine, toppling it over, but not deflected sufficiently by that impact, it scraped the thick wall and veered off, the slot rockets screaming continually as they resisted and then abetted a violent roll.

Like some animate, devilish thing the mechanical monster spun and thrashed over the water and among the fleeing, scattering, yelling horde attacking the city beyond. The abrupt shock of a stopped descent, and the subsequent blow against the wall, had thrown both levers in along their slots, and from rear and bottom rocket gases ripped out, spraying huge columns of water as the ship's tail swung over the river.

Dead and dying marked the path of that monster projectile, and the whole slope and river bank was a bedlam of confusion. Scarcely had it swung broadside before the ship jerked away from the water. Something had gone wrong with its mechanism, for the power operated in spurts, lifting it, crashing it against the mountain face. It inched up, gouging stone and soil with its shattered nose, throwing plumes of ripped-out ground behind it.

Boring through the obstruction it rose in a series of lifts, slid off a rocky outcropping, and went hissing into a grove of trees. The tough growths held it quivering, as the spasmodic rocket discharges jerked the gray hulk forward and up.

Down the river innumerable men ran at a shambling gait, terror in their cries, pointing back to the smoking, scarred hillside. And within the narrower gorge upstream, others stood irresolute, gazing at the turmoil below. About them a grey dusk was beginning to fall, stealing among monster collonades and under the vast archways of stone that ornamented one side of the gorge where stood bald men, with slim shoulders and great eyes, in the depths of which were commingled fear and hope.

Deneen held Ruth as in a vise, his shoulders hunched to take the shock of their tumbling. The world seemed exploding. They were tossed and thrown with terrific force, but the man's senses held to coherence. Pitched into the aisle, he rolled over, hunched between the seats and braced powerful legs and back to wedge himself and the woman securely. The whole tossing structure turned completely over, but the spin was too rapid, and Deneen's leverage too stronge to dislodge them. They righted again. Sulphurous smoke, choking, burning the man's nostrils, filled the interior. Violent jolting, a smashing and ripping at front, then a final plunge. Something held the ship, though it heaved and quivered to the thrust of the erratic gases.

Deneen squirmed out into the aisle. The woman in his arms was limp. Fear tortured the groping man. Her head had struck something in their helpless rolling—he had felt the shock, glancing off his arms. The interior of the ship was full of yellowish, acrid smoke. The hull was broken up, and whatever chemical combination supplied the rocket mechanism was finding outlet into the long cabin. Deneen heaved to his feet, his tortured lungs sounding their imperative call for clean air. Stumbling forward with his burden, he fell. The forward part of the ship was filled with dirt and rocks, forced through the broken front windows. On hands and knees, shifting Ruth's limp body before him, Deneen groped for the door.

Something tangled his left arm. He tried to shake free, and felt the thud of a light object swing back and strike his face. It was the longbow he had placed beside the door, swept across by the avalanche of dirt. Frantically Deneen clawed at the ground. If the obstruction had covered the oval panel—a grunt of relief escaped him as his fingers touched a beveled wooden edge. The entering mass of rock and soil had pushed the unlocked door aslant the aperture. Deneen lifted it with one powerful wrench, and pushed the dirt through the opening. Traces of clean, cool air revived his failing senses.

He reached back and dragged Ruth to the aperture. Two minutes later, with the woman in his arms, his eyes smarting and almost useless, the man moved in a clump of trees already aflame in their blanket of needlelike leaves. Even in his dazed condition Deneen noticed these things, as they fell again, and he groped along the ground. Pine needles—his fingers ran through them—the smell of them alleviated the reek of gas in his nostrils. Dangling from his arm, tripping him as he rose, was the strung bow.

He passed his head through the string and shifted the weapon along his back. Vision was coming to him, and the dim outlines of the tree clump, the pitch of the slope, registered on his mind. Lifting Ruth again, he headed up the mountain; thought of the men by the river an unconsciously operating motive of his action. Ruth was beginning to move.

CHAPTER XII

The God of the Savages

SCRAGGLY bushes grew above the trees, and here and there the steep slope was pocketed with hollows. Deneen stopped on a bit of level ground. He knelt, peering at Ruth's face. A swelling over one temple, an angry bruise, gave evidence of her hurt. She was groping to consciousness. Deneen lifted his head. Beneath the shock of rapidly succeeding events was a pressing voice of reason warning him, reminding him of the horde into which

the ship had fallen, of the city further back in the gorge. The man peered around with his aching eyes.

His first impression was of vastness, of being far in the bowels of the earth, looking up Titanic upheavals of stone cleft against a darkening strip of sky. The change from height to depth increased the impression. The gorge, which from above had looked like a narrow thread, was overshadowed by colossal shoulders of rock. To right of Deneen, where it opened to the lower valley, it was comparatively light, and he saw a wild confusion of men—saw the great concrete structure around which were rows of rocket-ships, and the billowing clouds of smoke from a forest fire, touched with blue from the low sun over the sea.

But farther up the shadows of a swift dusk were thickening over the river, a river flecked and streaked with red, that swept over mangled bodies, and the yellow mud of a terrible churning. Over the wall, to left of him, was a sight which brought Deneen to his feet.

Streets—streets of smooth white paving, lifted high and running parallel with the river, the ones farther toward the gorge wall visible through an amazing array of columns. As far as the eye could see, all that side of the gorge was built up, the rough rock hidden by one continuous structure of whitish substance, partly resting upon, partly dividing the monster collonades. And the whole connected mass was lighted by lines of fire with clearly defined borders, circling the columns, ornamenting the face of the solid walls, hanging like blinding ropes over the streets.

Far up the gorge, men were trickling down the white roadways, hesitantly—there were scattered groups of them in front of the buildings, and beneath the structure in the columned plazas. The fiery tracing revealed them clearly to Deneen, bald humans, dressed as he and the woman were. "Ruth!" he called hoarsely: "The rocket people! The city!"

Then, even as he moved to assist her to rise, was he conscious again of the cries for succor in his brain, dulled a bit now as if the uncanny voices were doubtful of him. "Walor? Walor?" they seemed to ask. From a point well up the gorge, stabbing out of the white walls, an eye of blinding light appeared, and a long searching shaft struck the river, lifted to illumine faintly the far clouds down valley, swept over the right side of the chasm picking out little groups of men edging down the trails and finally passing over the tree clump and the broken rocket-ship, it lingered, shifted a bit, and settled upon Deneen and the woman. Ruth blinked in the fierce glare. "Alan!" she moaned. "Where are we? I hear voices questioning."

"The rocket people, Ruth," he answered tersely, as an instinctive desire to run, to take the woman and hide, passed from him. "We fell into the gorge—fell into the thick of a mighty big fight!"

He was conscious of a sense of menace, of danger, apart from the ghostly calls in his brain. The dusk was thickening. The searchlight shifted, and he saw clearer. A ruddy glow touched the clouds in the lower valley, and across the blood-red line flitted the hulls of the rocket ships that still circled over the great, flat buildings below. Nearer, the growing gloom was punctured by a thousand lights, flaring red lights that moved and shifted over a confused mass of faces, lights that cast flickering illuminations and shadows over the flowing stream.

On the side walls of the gorge, less steep where the river widened, other shifting ruddy lights were inching down. Far up, on the very summits of the walls, glowing like great red stars against a darkened sky, the tiny torch fires, spaced regularly, ran back into the hills, upgorge, over the white city of the rocket people. A dull, incessant throbbing—monotonous, savage filled the air. From the shifting horde in the lower valley rose a wail that the vast walls bandied about and multiplied and made eerie. "*Ai*—Aye!— *Ai*—Aye!" an endless singsong chant.

"Ruth!" Deneen said tersely. "Let's get down!"

Sharply it came to him that the bald people, grouped there among their great structures, were helpless. The wailing of thousands of throats was a savage dirge, a predatory singsong like the call of some hunting pack closing in on its quarry.

Deneen swung the dazed woman up in his arms. "I know which side *I* take, right now. I was almost sorry for the beggars, the way that ship ripped into 'em, but—" his voice trailed off as he began to descend.

"Alan! I can walk. Put me down!" Consciousness was coming to Ruth. "Alan—that terrible crying, like beasts—"

Deneen stopped. Shadows moved toward him, coming up from the river. He heard a confused yelling.

Through the man's bruised body crept a glow of anger, the slow stealing of a lust to fight. The long lance of the searchlight stabbed the dusk again, playing over the river, and showed him what manner of creatures cut off his way to the city.

"Ruth—stay behind me!" he ordered. "Keep back!"

THE long rocket ship, in its terrible skid through the gorge, had cut off a knot of the shambling men on the further bank, leaving them unharmed, already past the wall, but no longer supported by the body of the fleeing horde below. By the laws of primitive psychology, they should have been paralyzed with terror, but apparently the wild frenzy of the chant which rose throughout the canyon had lifted their fear. Deneen pulled the long bow from his shoulder. The quiver of arrows, nearly full, still crossed his back. "We're going down!" he said grimly. "Stay close behind me."

The searchlight played fully upon the river, and the squat men who swam across came lurching, dripping and grotesque, up the slope toward Deneen with the eagerness of wolves. They carried clubs, crude spears, and lumps of stone. There was no plan nor order to the attack, merely blind impetuosity. Deneen's sudden rage grew to cold purpose. He continued to move down, and the great bow, bent and loosened in his practiced hands, drove swift messengers of death into the motley, bestial company.

They broke and ran, after a few moments of paralyzed surprise, broke and ran down the incline, and downstream toward the main body of their fellows, leaving three sprawled on the brightly-illumined ground. Now from the vast horde below there rose a swelling cry of rage, a long drawn howl of mass ferocity. Deneen could see the twin columns of men along the river, move like huge snakes in the dusk, move forward. "Come on, Ruth!" he called.

The searchlight followed them down. Then stones be-

gan to fall, single rocks, small landslides, and finally a huge mass that roared and growled and crashed with terrific jar into the river-bed not twenty yards ahead of Deneen and the woman, covering the outjutting wall, damming the waters so that they curled over, and raced furiously in the narrowed bed.

"Come on!" growled Deneen, fairly lifting the woman along. The searchlight played over them, over the huge mound of soil which blocked the river. Deneen clambered up, swinging Ruth alongside. Missiles came out of the dark; thrown rocks, spears that glinted their obsidian points in the lance of light. All the vast horde down-valley was in motion.

Deneen turned on the crest of the mound, and sent bitter, humming arrows to halt the forward fringes of the pack. Then he ran with the woman down the opposite incline, the friendly searchlight shifting to illumine the way. Water in the narrowed river boiled around his waist, tugged and pushed at him as he carried the woman across. They gained the raised, level street, stood dripping and cautious, a man and woman of the steppe and jungle among the habitations of strangers. But the mood passed. Memories of another world, a world of monster buildings, of lights and sound, came back to them with a rush. For among the groups coming to meet them was an individual who ran and waved his arms and yelled. The wild welcome in the shout came to both above the bedlam in the gorge.

"Deneen! Deneen!"

Ruth cried out from a full heart. "Jim Gregory! Jim Gregory—alive!"

There was no time for overlong expression of the emotions that surged in them. Gregory kissed Ruth. He gripped Deneen, shook him. On his wasted features was a great gladness, like that of a man who has wandered for long in strange regions and sees familiar ground ahead. "God! it's good to see you, to hear speech, human speech!" he almost wept.

"Where's Meredith?" asked Deneen as he gazed around him, at people with great, sad eyes; the vast archways of decorated and foliated stone beyond.

"Back in one of those buildings. He sent me to see if you were coming. Telepathy—O, what an awful mess of things!" Gregory's eyes were a bit wild. "We knew you were coming—you and Ruth. But Meredith, is racing time, trying to complete a death ray or something. No chance," he shook his head, looking at the advancing horde below. "We're done for, Deneen. Finished!"

Deneen's gaze swept the whole scene. A group of the rocket people were about him, slim creatures with large, deerlike eyes and perfectly bald heads. Myriad voices were in his mind—he could feel wonder, surprise, questionings. Louder came the query—"Walor? Walor?" One of those nearest, a female, to judge by the contours of her bust, reached out and touched his beard. "But these people are *human!*" Deneen said sharply. "Human beings! How—"

"Come this way," advised Gregory. "Those devils up there," he pointed to the gorge top, "are starting to roll rocks." They moved in a body up the street and below the vast arches. Deneen marvelled. "What's all this mess about?" he asked looking back, as another avalanche roared down into the gorge. Past the earth mounds were the advancing thousands of squat men, a double menacing snake winding up along the river, ruddy-colored in the light of the torches. "What is it—war?"

"Wait," said Gregory in his jerky manner: "Listen!" He turned to the group around them. Others were moving out from among the colonnaded squares, issuing from doorways, stepping slowly down curving stairways. Ruth moved as in a trance. Passing below the great arches opening to the street, they were in a fairyland of form and grandeur and white light. Gregory called to the rocket people. He pointed toward the gorge. Pointed up. "The face!" he said, moving his lips in exaggerated manner. "Put your searchlights on the face."

DENEEN saw and felt the fear that greeted the request. None moved. But Gregory said, "Wait!" And Deneen saw the shaft of light that had guided him across the river now play along the wall of the opposite slope. "This way," said Gregory. He led them, followed by the curious bald people to an open courtyard from which could be seen the sky and stars. "Stay there in shelter," he warned. "They're dropping rocks from above. Look! at the opposite wall."

The shaft of light swept across the wall and settled on an outthrust. Then through the gorge the crying of the skin-clad, advancing horde climaxed in a raging chorus. The distant drum tattoo increased in rapidity, like a savage protest.

"Sacrilege," said Gregory half wildly. "They go mad when we shine light on that face. It's God to them, Deneen—a face of stone hung hundreds of feet in the air—overhanging us—a face chiseled four million years ago!" He laughed in hysterical outbursts. "Look at that face, Deneen—the face of a god—the reason we will soon be clubbed to death, torn to bits. You remember that face—every good American does! Well, it was chiseled out of granite four million years ago!"

Deneen's hawk eyes gazed unbelievingly. Ruth cried out. "I saw it, Alan—saw it as we were falling! We've never left the earth."

"No," said Deneen slowly. "We've never left the earth." High up over the gorge, part of the vast wall, was an outthrust of stone. It was balanced far forward over the white city. At top it formed the shape of a human head. Its front had features, eyes, nose and mouth. Deneen knew those features. It was a carved face of George Washington, hewn in the rock, that looked down over the incredible city of the rocket people.

CHAPTER XIII

Doomed

"FOUR million years!" muttered Gregory; and Deneen, looking sharply at him, noticed a strange light in his eyes. His words were not rational. Gregory was either mad or rapidly becoming so. Around them stood the bald people—in groups and lines they were to be seen through all the great colonnaded corridors, at the entrance to every building. "Take me to Meredith!" Deneen said evenly. "And get some of these fellows over there by the road, to stop that bunch coming up valley."

Gregory shook his head.

"We're finished Deneen. How you got here I don't know. Black magic, perhaps." His eyes were round, his

voice a whisper. "But you did the impossible only to come to your death. We can't hold off these devils. The mountains are swarming with them. And these people can't fight!"

"Can't fight? Why not?"

"They have no combative instincts, Meredith says. They have no weapons, except some clumsy rocket guns built into several of their ships. All the ships equipped with them are down-valley. They couldn't be used here anyway. We're bottled up, Deneen. There's no chance for us. I've seen it coming for days—for long days!" he suddenly cried raising his hands.

The soft-eyed people shrank away. Deneen put his arm around the crying Ruth. "Gregory," he said sharply. "Do as I tell you! We've got to hold that mob off, till—" he shrugged impatiently. "Where's Meredith?"

"Jim!" the woman implored Gregory. "Please, Jim! We don't understand!"

But something was snapping in Gregory's mind. Deneen noticed again the emaciated features of the man. His hair was queerly trimmed. Grey, pliant cloth concealed the condition of his body. But his eyes burned strangely. Some terrible strain, culminating in his seeing Ruth and Deneen, had scraped Gregory's nerves to the point of hysteria.

"I tell you these people can't fight!" he cried. "Moon people! They come from the moon! They can't run—can't move. They can't even *talk!* They just stare at you and you hear them crying for help in your brain! My God! They're driving me crazy! Don't you hear them, Deneen? Crying for help?"

Deneen backed away. He looked down the gorge. The front of the horde in the valley was closer now, advancing steadily. The savage singsong chant reverberated from the rocky walls. Slowly Deneen turned and studied the great buildings about. He noticed now that the silent people moved slowly, as if their limbs were weighted.

"Moon people!" he muttered, and now the strangeness of it, of the correctness of his own guess, swept over him. "Moon people! Can they understand?" he asked with abrupt directness of Gregory. Something had to be done. Time was short.

"I don't know!" muttered the other, calming. He seemed to be trying to get control of himself. "Deneen—it's been hell! Meredith says they can understand him. He knows what they tell him. But I'm—I'm finished!" he groaned. "It's been hell!"

"You can help me!" said Deneen evenly. "Take Ruth and bring her to some safe place, out of danger. Then get Meredith. I have to see him right away. Tell these people to throw that searchlight of theirs on the water by that mound—the avalanche mound. Tell them to put every light out! Jump! Tell 'em I'm boss here!" He turned to the group around him, prodding his chest. "Alan Deneen!" he said very distinctly. "Ruth!" putting one arm around the woman. "Friends! Fight! Do what I say!" He paused a moment, and strove to make out the puzzling sound in his mind. "Walor!" he said, grey, hard eyes searching the faces about him. "Walor!"

He saw a general gladness in the soft eyes, looks of relief. The feel of emotional approval was like a tangible sea about him. In his mind a great crying rose, welcoming, surging up in waves of joy. "Walor! Walor!"

"Well—I'll be—" Deneen pulled Ruth close to him. "Little woman—I can't make this out. This city is Paris and Venice and New York combined. In this hole—made by people that can scarcely move. Perhaps your uncle knows the answer to all these riddles. Find him, Ruth. I have to stop those drum beaters." He held her close, scarcely aware of the onlookers, held her face in his great hands. "Ruth—this is my fault. We might have stayed away."

"Alan!" She clung to him. A terror grew in her eyes. The full sense of the menace about them struck her. "Alan—they'll kill you! Can't we escape? Can't all these people escape?"

"Take care of her, Gregory," said Deneen a bit hoarsely. "She's been hurt. Get her back into the buildings somewhere. "What's that?" he added sharply. A rumbling smash had sounded from beyond the colonnades.

"Stones!" replied Gregory with wide eyes. "Big stones! They roll them over the brink of the gorge. They began last night. We're finished, Deneen! There they come!" he pointed. "There they come! The beast men! They'll club us to death—torture us—"

"Find Meredith!" cried Deneen, his throat swelling to a rush of blood. "Ruth! Go with him!" Without another word, acting by instinct, he began to run, back toward the brilliantly-lighted front street overhanging the river. At its lower end a straggling vanguard of skin-clad forms were edging doubtfully along, waiting for the great body of their fellows. Seconds of delay would spell the end of the city in the gorge.

(To be concluded)

What Is Your SCIENCE KNOWLEDGE?

1. What are the two extremes of the visible part of the spectrum of electromagnetic waves? (Page 11)
2. How far is Mercury from the sun? (Page 15)
3. What is known about the erratic motion of Mercury? What are some of the conclusions drawn from it? (Page 15)
4. What is the effect of radium taken internally? (Page 16)
5. What living beings exhibit electromagnetic properties? (Page 35)
6. How large is the sun? How fast is it moving? In what direction? (Page 36)
7. How long is the Venusian day (Page 37)
8. What is the list of solar planets in the order of their distance from the sun? (Page 36)
9. What are the moons of Mars? How large are they and what are their distances from the primary? (Page 37)

The Invisible City

(*Continued from page* 13)

that threatened to involve by swift degrees the whole extent of Ciis.

Gazing spellbound, Furnham had almost forgotten the serpentine rays. Too late he saw that one of them was upon him. He leaped back, but the thing caught him, coiling about his limbs and body like an anaconda. There was a sensation of icy cold, of horrible constriction; and then, helpless he found that the strange beam of force was dragging him back down the slope toward Ciis, while its fellow went on in pursuit of the fleeing Langley.

In the meanwhile the spreading disk of fire had reached the tower from which the ray emanated. Suddenly, Furnham was free—the serpentine beams had both vanished. He stood rooted to the spot in speechless awe; and Langley, returning down the hill, also paused, watching the mighty circle of light that seemed to fill the entire basin at their feet with a soundless vortex of destruction.

"My God!" cried Furnham after a brief interval. "Look what's happening to the slope."

As if the force of the uncanny explosion were now extending beyond Ciis, boulders and masses of earth began to rise in air before the white, glowing maelstrom, and sailed in slow, silent levitation toward the men.

Furnham and Langley started to run, stumbling up the slope, and were overtaken by something that lifted them softly, buoyantly, irresistably, with a strange feeling of utter weightlessness, and bore them like wind-wafted leaves or feathers through the air. They saw the bouldered crest of the acclivity flowing far beneath them; and then they were floating, floating, ever higher in the moonlight, above leagues of dim desert. A faintness came upon them both—a vague nausea—an illimitable vertigo; and slowly, somewhere in that incredible flight, they lapsed into unconsciousness.

The moon had fallen low, and its rays were almost horizontal in Furnham's eyes when he awoke. An utter confusion possessed him at first; and his circumstances were more than bewildering. He was lying on a sandy slope, among scattered shrubs, meager and stunted; and Langley was reclining not far away. Raising himself a little, he saw the white and reed-fringed surface of a river—which could be none other than the Tarim—at the slope's bottom. Half incredulous, doubting his own senses, he realized that the force of the weird explosion had carried Langley and himself many miles and had deposited them, apparently unhurt, beside the goal of their desert wanderings!

Furnham rose to his feet, feeling a queer lightness and unsteadiness. He took a tentative step—and landed four or five feet away. It was as if he had lost half his normal weight. Moving with great care he went over to Langley, who had now started to sit up. He was reassured to find that his eye-sight was becoming normal again; for he perceived merely a faint glowing in the objects about him. The sand and boulders were comfortably solid; and his own hands were no longer translucent.

"Gosh!" he said to Langley. "That was some explosion. The force that was liberated by the shattering of the Doir must have done something to the gravity of all surrounding objects. I guess the city of Ciis and its people have gone back into outer space; and even the infra-violet substances about the city must have been more or less degravitated. But I guess the effect is wearing off as far as you and I are concerned—otherwise we'd be traveling still."

Langley got up and tried to walk, with the same disconcerting result that had characterized Furnham's attempt. He mastered his limbs and his equilibrium after a few experiments.

"I still feel like a sort of dirigible," he commented. "Say, I think we'd better leave this out of our report to the museum. A city, a people, all invisible, in the heart of the Lobnor—that would be too much for scientific credibility."

"I agree with you," said Furnham, "the whole business would be too fantastic, outside of a super-scientific story. In fact," he added a little maliciously, "it's even more incredible than the existence of the ruins of Kobar."

THE END

The Power Satellite

(*Continued from page* 69)

centrate that hasn't been ultimately refined. Perfectly legal, eh!"

He led them to a barrel that stood against one wall. It was like many others there—a thick lead alloy cylinder such as were used during various processes in refining. Graxon tipped up the heavy cover, and a choking puff of ozone welled up out of the half-filled barrel.

The officers looked inside. They saw a thick gray mud that seemed possessed of a life of its own.

"It's all there, and I'll deliver it some day when I get around to it," Graxon said.

"But why," Belts asked, trying to fit together the various pieces of the puzzle, "did you fool the Authorized Representatives?"

"Because Snaide was one of them. I had to convince Snaide that the slop I was delivering to him was the real stuff—for *her* sake. What better way than to short the Authorized Receivers?"

Graxon's manner became less dourly amused, became sad.

"And yet, it was for nothing. When Snaide is returned to Mars for trial, Mesuen will hear where Glyda is, and—"

"Hadn't you heard?" Waite interrupted, "Snaide is dead. Glyda will make her home on Earth. You too, sir, if you will accept a diplomatic passport."

He did not mention what was uppermost in his mind; the fact that inexorable loyalties no longer stood between him and Glyda. That thought he would cherish with jealous secrecy until he could share it, very soon, with Glyda alone.

THE END

Under Arctic Ice

(*Continued from page* 59)

To my elation the motor started at the first turn of the propeller; and as I pulled on my greatcoat I experienced a thrill of hope and confidence that reason told me was entirely unjustified by my chances of being able to fly in the patched-up, untested machine, or by my being able to soar out of that dark, starlit opening far above, even if I could leave the ground.

I nosed her out into the road and with a farewell wave to faithful Barbon taxied down the smooth way.

Almost at once we took the air, and I circled over the little shop and saw my friend composing himself, or rather disposing himself, in a posture to denote violence, in preparation for the coming of those who were searching for me.

At the same moment I observed that it was growing lighter. Although it was still early in the evening, the Tovarts were no doubt starting up the daylight-producing machinery in order to facilitate the search for me.

I should have been very glad of daylight for my own purposes had it not been that I was afraid of the effect daytime conditions might have on the upward draft of air.

I had learned that the same machines that produced the light also sent out an ionizing current which created an ionized stratum of atmosphere, thus serving to imprison the warm, artificially-heated air and prevent its being carried up and dissipated.

This air layer divided the warm air from the cold in the same manner that our own stratosphere divides the warm air near the earth from the much colder strata above, or as the discontinuity layer of the ocean separates the warm surface waters from the chilly depths immediately below.

In the evening when the machines were stopped this layer was quickly dissipated allowing the warm air to rise, creating a great draft up and out of the open world. Later, as the interior of the cone cooled off and the volume of the air decreased, a new supply of fresh cold air was pulled in from outside and stability reestablished.

It was this rapid upward rush of warm air that had wrecked my plane when I inadvertently flew over this sunken world; it was this same upward draft that I now depended upon to help me make the hard climb to the top.

Holding her nose as high as I dared, I gave the motor all the gas she would take and spiralled upward. Up and up I went in ever decreasing circles, while the steady upward pressure of the air lent speed to my wings.

Meanwhile the light increased. All the soft hues of twilight and the brighter colors of daybreak spread out beneath me and were reflected back from all sides with the added glories and beauties of the prismatic effects of the ice walls.

The now far-away bell which so often had called the Tovarts to morning devotions was sending out a chorus of alarmed notes, as if summoning the faithful to avenge the wrongs of a god who had been wantonly outraged.

No patch of starlit heavens ever looked more beautiful to distracted mariners lost at sea than did this jeweled, bespangled circle above my head as I drew near to the top of the cone.

At last, still buoyed up by the upward rush of air, I burst out above a world of clean white snow and saw the moon smiling down above the horizon.

With a great feeling of relief like that of one who awakens from a fiendish nightmare to find that all is well, I turned the nose of my steed toward the south and fled across the white reaches of the encircling vastness toward a better and a happier land.

THE END.

The Message from Mars

(*Continued from page* 45)

as he was in command of the American operations, and responsible for disposing of the Japanese Navy.

Once more I got into touch with Borara. The old gentleman seemed to be very pleased with himself. "Mr. Cooper," he said, "will you give my thanks to every Government, who was kind enough to confer its honors upon me. I would like to see each insignia separately so that a sketch could be made, and duplicates produced here."

"It is vanity, I know, but I must confess that I am very proud of these honors. As a matter of fact the whole of the Martian nation are rejoicing at the termination of wars on Earth. Peace is rapidly coming to the Universe.

"Now I am pleased to say that the Scientific Council of Mars have elected you as a member of the Council. This is one of the highest honors on Mars.

"As soon as all the excitement is over, you and I can carry on with our scientific work. Both of us have a good deal to learn. I would like to converse with some of your prominent astronomers, and obtain their co-operation in the study of the universe. Although we are looking at the same object, we are looking at it from different points of view, and if we compare our results, we are sure to arrive at the truth.

"Before we part for tonight, I have an important message to deliver. The King of Ahrah wishes to 'meet' your Sovereign."

I assured Borara on His Majesty's behalf that he would be happy to converse with the ruler of Mars.

His Majesty the King graciously paid a visit to my laboratory at Whitehall, and the two great rulers exchanged thoughts for nearly three hours.

And now I think I will close my narrative for the time being. I am not an experienced writer, and this effort of mine proved to be the most difficult one I have ever tackled. I shall now devote the whole of my time to studies under Borara's guidance, and to my family, whom I have badly neglected of late.

What do you think Bill is doing? Why, the obstinate fellow is going to Cambridge to study. He won't give up that precious university education of his.

THE END

Science Questions and Answers

This department is conducted for the benefit of readers who have pertinent queries on modern scientific facts. As space is limited we cannot undertake to answer more than three questions for each letter. The flood of correspondence received makes it impractical also, to print answers as soon as we receive questions. However, questions of general interest will receive careful attention.

The Obstacles to Space Flying

Editor Science Questions and Answers:

I see in your November issue that you have a complete list of all the known elements. I have made quite a collection of scientific data, so if you will consider space flying and make a complete list of all of the obstacles to be overcome, I will be very grateful.

Norman Maxuire,
Atlantic City, N. J.

(It is not possible to go into any detail in discussing the obstacles to space travel, but a list of them and a brief mention of their significance can be made. The first obstacle is that of a sufficiently powerful fuel, one that for each pound of its weight supplies 20,000,000 foot-pounds of energy. No such fuel is now known. The most powerful fuel now possible of use is a mixture of liquid hydrogen and oxygen which provides 5,000,000 foot-pounds per pound when used with 100% efficiency. Naturally the fuel that is used must be capable of control, so that it may be shut on or off in order to guide the flight of the ship in space.

The second obstacle is the danger of colliding with meteors. Recent investigation and inquiry from astronomers has shown, however, that this danger is somewhat overrated and that on a trip to the moon there is only a chance in a million of being hit.

The third obstacle is the danger of exposure to disastrous bombardments of cosmic rays or other extremely short wavelength radiations in space. Such emanations are deemed to be destructive to animal tissue, as radium emanations are, and it would normally be impossible in space to have the walls so thick that the emanations would be shut out. The ascension of Professor Piccard to a height of ten miles above the earth, where radiations should be quite intense, and his report that he suffered no ill effects, gives hope that the danger from cosmic rays has been overrated.

The fourth obstacle is the danger of being roasted or frozen in interstellar space. In other words, a means must be devised to maintain the ship at a comfortable temperature even though it be continually in the full furnace glare of the sun. Incidentally here, equipment must be possible to furnish an adequate supply of breathable air, food and water within the ship. These obstacles are not deemed to be very serious, but nevertheless they exist.

The fifth obstacle is the possible grave effects on the human organism of an absence of gravitation in space during the greater part of the journey. Plans for the rotation of the ship about its longitudinal axis, so that it spins like a rifle bullet, have been proposed. In this event, an artificial gravity would exist within the ship, due to the resulting centrifugal force.

Then there are the problems of navigation in space in three dimensions, and the delicate problem of making a landing upon the world to which one is going. The making of a safe landing on the airless moon would be especially difficult, and as yet no satisfactory means have been suggested. Landing upon Mars is a less serious proposition, for Mars has an atmosphere; and to land upon Venus would be still less serious. But the control of the space ship so that its speed of several miles a second, when approaching its destination, can be slowed sufficiently to ensure a delicate landing, would require the highest kind of skill.

Further information on this fascinating subject can be obtained from "The Conquest of Space" by David Lasser, president of the American Interplanetary Society. This book is the only authoritative book on space flying in the English language.—*Editor*)

The Brightest Stars

Editor Science Questions and Answers:

Will you kindly publish in your excellent department the names of the ten brightest stars in the heavens and in what constellations they can be found?

James B. O'Hara,
Milwaukee, Wis.

(The ten brightest stars, with their magnitudes (or relative brightnesses) and the constellations in which they can be found, are given below. Two points should be noted. The apparent brightnesses of stars are given as their magnitudes. The smaller the magnitude the more bright the star. Thus there are stars so bright that their magnitudes must be expressed as less than one—as minus quantities. The magnitude or apparent brightness has no relation to the actual brightness of the star. Of two stars one may have an apparent brightness twice the other, yet the less bright star may in actuality be hotter or larger. The distance of the star from us must be taken into consideration in judging its real brightness.

The second point relates to the constellations. The constellation merely means the part of the sky in which the star can be found. The ancients traced out in the sky figures of one kind or another such as dogs, fish, bears, bulls, etc. and thereby named the constellations according to the figures they represented. The constellation that a star is in has no relation to its distance. Two stars may be in one constellation yet one might be two or ten times as far away from us as the other.

Star	Magnitude	Constellation
Sirius	-1.58	Alpha Canis Majoris
Canopus	-0.86	Alpha Carinae
Rigil Kent.	+0.12	Alpha Centauri
Vega	0.15	Alpha Lyrae
Capella	0.21	Alpha Aurigae
Arcturus	0.24	Alpha Bootis
Rigel	0.34	Beta Orionis
Procyon	0.45	Alpha Canis Majoris
Achernar	0.60	Alpha Eridani
Agena	0.86	Beta Centauri

—*Editor*)

The Planetary Moons

Editor Science Questions and Answers:

Could you publish the names of the satellites of the planets of the solar system and give some idea of their sizes?

Frank N. Stine,
Mahonoy City, Pa.

(The following is the list of the more important satellites of the solar planets and the best available information as to their sizes. Naturally, since many of the satellites or moons do not appear in our best telescopes as discs, but are seen as merely points of lights, their size can only be measured indirectly by their apparent brightness and their distance from us. In this list the moons are given in the order of their distance from the planet. The rings of Saturn are not included here.

Planet	Satellite	Diam.
Mercury	none	
Venus	none	
Earth	Luna	2160 miles
Mars	Phobos	10-20 miles
	Deimos	10-20 miles
Jupiter	Io	2000
	Europa	2000
	Ganymede	3500
	Callisto	3350
	Nos. V to IX	50-100 miles
Saturn	Mimas	400
	Enceladus	500
	Tethys	700-800
	Dione	700-800
	Rhea	1100
	Titan	2600
	Themis	Unknown
	Hyperion	300
	Japetus	1000
	Phoebe	150
Uranus	Ariel	(700
	Umbriel	(to
	Titania	(1400
	Oberon	(miles
Neptune	Triton	3000
Pluto	none	

Practically all of the satellites revolve in the same direction as the planet, from west to east, and practically all revolve in the plane of the planet's orbit about the sun, that is around the planet's equator. There are however a few exceptions. Phoebe, the tenth satellite of Saturn; the four moons of Uranus; and Triton, moon of Neptune, revolve in a retrograde direction from east to west. The four moons of Uranus also revolve in an orbit nearly 90 degrees from the plane of Uranus' orbit about the sun.—*Editor*)

(*Continued on page 90*)

Shewing the differences in the orbits of the moons of Jupiter and Uranus. The moons of Jupiter revolving about the planet in the same direction as the planet revolves, and in the plane of the ecliptic is quite usual. The moons of Uranus are inclined 70 degrees to the ecliptic and revolve in a retrograde direction.

READERS

If you like "Science Questions and Answers" in this magazine, you will find in our sister magazine, EVERYDAY, SCIENCE AND MECHANICS, a similar department, greatly expanded called "The Oracle." Look for it, you science fans!

IN this department we shall publish every month your opinions. After all, this is your magazine and it is edited for you. If we fall down on the choice of our stories, or if the editorial board slips up occasionally, it is up to you to voice your opinion. It makes no difference whether your letter is complimentary, critical, or whether it contains a good old-fashioned brick bat. All are equally welcome. All of your letters, as much as space will allow, will be published here for the benefit of all. Due to the large influx of mail, no communications to this department are answered individually unless 10c in stamps to cover time and postage is remitted.

White Gods Who Ruled

Editor, WONDER STORIES.

Congratulations on your April issue of WONDER STORIES and on your Spring edition of WONDER STORIES QUARTERLY! Your magazine has certainly improved since your first issue was put out, nearly three years ago. All of the stories in the April issue were splendid with "50th Century Revolt" by Arthur G. Stangland taking most of the honors.

A word about "The Last Woman" by Thomas S. Gardner; it was a truly wonderful story, with a clever plot, ingeniously worked out.

The QUARTERLY certainly "hit the spot" with that remarkable tale of J. M. Walsh, the "Vanguard to Neptune." Clifford D. Simak scored in that marvelous story of his, "The Voice in the Void."

If WONDER STORIES and WONDER STORIES QUARTERLY are signs of prosperity let us hope that we never have another depression and that prosperity will always be with us.

Did you know that the base of an immense pyramid was recently uncovered in Egypt supposedly constructed by a race of white "gods" who ruled in the days when Rome was not as yet an empire and was not as yet known! Why not have a story based on an expedition sent to explore this symbol of a vanquished race and perhaps have them discover beings in a state of suspended animation or at least to find inscriptions or wonderful machines left by these strange people! Assuredly such a story would meet with your reader's approval.

Fred J. Walsen, Denver, Colo.

(It may be a case of mental telepathy between Mr. Walsen and the editors, but he will find in the Summer QUARTERLY "Beyond Pluto" by John C. Campbell, a story in answer to his request. Young Mr. Campbell has outdone himself in this story.—*Editor*)

A Machine for Killing

Editor, WONDER STORIES:

I have just finished the April number and honestly feel that, even disregarding entirely all the stories but two, it is as fine an issue as I've read in many a day. After reading the last two lines of "The Final War" I couldn't help wondering a little at the remark of Mr. Smirni—that this story is "absolute trash" appealing to "barbarous imbeciles." There is a certain sadistic type of mind, of course, that revels in scenes of physical torture and bloodshedding; but with that class we are little concerned.

There is a more prevalent type of mind, I am sure, to be found among the readers of WONDER STORIES—the mind that seriously and sanely wishes to see and understand to the fullest extent just what the horrors of war mean to humanity. And Mr. Spohr has afforded them the opportunity to make this study in "The Final War" with his simple, direct style that gives such a telling effect.

Time and again the author scales the heights. The terrible sense of vague wonderment as to when the end will come—the unhuman haste of man and woman to make their appointment with Death—the appalling matter-of-fact treatment of what is presumed to be one of the most sacred and tender relations of life, marriage—the revolting manner in which the virus of war changes the kindly professor into a machine for killing—all these combine in a great story to produce a smashing denunciation of war. Mr. Spohr lacks, perhaps, the facility and polish of the first-class writer; his method of handling a multitude of characters is not smooth. But to call his story "absolute trash"—well!

Fully as fine a story, though in a different realm of science fiction, and lesser in scope, is Mr Hilliard's "Reign of the Star-Death." Here again is realism in its most poignant form. The parallel between the moral struggle (whether or not to kill ten thousand to save millions) and the actual scientific struggle against the ray is very cleverly handled. These conflicts, together with the more obvious one of troops versus civilians, are all drawn to a head with a good deal of skill. As Mr. Lasser himself recommended the preceding story, "Death From the Stars," I read this one with more than usual care. And in both there is a wealth of good sound thought of which no man need be ashamed.

With two such stories in a single issue, then, it's no wonder that WONDER STORIES is so popular with discriminating readers. When I compare what little I've done for the magazine with these stories, it makes me at once ashamed and proud. Ashamed at my temerity at offering my stories when the editors can get things like the above; proud that in a sense, at least, I am a colleague of Mr. Hilliard and Mr. Spohr.

A. K. Barnes,
Los Angeles, Calif.

(We think so little of Mr. Spohr and his "Final War" that we are going to persuade him to write a sequel. Our readers want to know what happens to the civilization that was left as a wreckage from "The Final War." Will men profit by their mistakes and recreate a new and better civilization, or will they again build in order to destroy? Perhaps Mr. Spohr will tell us.—*Editor*)

Need to be Socially Introduced

Editor, WONDER STORIES

I have been reading the Gernsback magazines for some years; but it is only recently that I have been reading WONDER STORIES as a regular thing.

John Bertin's "Brood of Helios," opening your May issue, is one of the best stories I have had the good luck to come across. The introduction to the story under Mr. Bertin's picture states exactly what I wish to say about the story, so I will not bore you by paraphrasing it. The best part of the story is the fact that it has an interesting opening. So many writers seem to think that the reader cannot grasp the story unless each character is socially introduced.

"Vanishing Gold" by Capt. S. P. Meek was interesting, but the characters were stilted.

"The Venus Adventure" by John B. Harris was on a par for humanness, with "Brood of Helios."

"Why the Heavens Fell" deserves mention for its startling conclusion.

I like WONDER STORIES very much, for its authors all seem to be young, and in consequence do not usually become very technical. This pleases me, for I like to read a story and not a collection of scientific formulas.

Robert McDonald,
Rochester, N. Y.

(Mr. Bertin and Mr. Harris represent a new type of science fiction author, who believe that their stories should be reasonable and plausible as well as imaginative and human. They are the rising stars in the world of science fiction.—*Editor*)

ON LETTERS

BECAUSE of the large number of letters we receive, we find it physically impossible to print them all in full. May we request our correspondents, therefore, to make their letters as brief and to the point as they can; as this will aid in their selection for publication? Whenever possible, we will print the letter in full, but in some cases, when lack of space prohibits publishing the complete letter, we will give a resume of it in a single paragraph.

Staggering Atomic Energy

Editor, WONDER STORIES:

The question of atomic power, brought up by Mr. Hugo Gernsback in his latest editorial, is a most intriguing one. Many authors insist upon using it in their stories, yet not one has ever attempted to describe in detail the possible sources of this energy. Even Mr. Gernsback merely speaks of "a vast inherent power locked up in the atom." Two possibilities have been suggested. One is that the atomic energy consists in the centrifugal forces of the electrons' rotation about the nucleus. Another source is the attractive force between the nucleus and the planetary electrons. Neither of these is very plausible, however.

The amount of energy contained in the atom may be better visualized when we change the energy given off by an ounce of radium during its half-life period, given by Mr. Gernsback as 1,720,000,000,000 horsepower-seconds, to electrical units. This amount of energy would suffice to keep a 100-watt electric lamp burning on a 110 volt circuit for thirteen trillion seconds, almost 4000,000 years! And this is but a small fraction of the total amount of energy in one ounce of radium.

The only logical source of such huge quantities of energy is the electrons and protons themselves. Knowing them to be unit charges of negative and positive electricity, it might be feasible to separate the electrons from the protons, group like charges together and construct a modified form of electric cell. If this could be done and the electricity properly harnessed, a few pounds of any material would make an electric generator such as has never been seen. The current provided by a one-cent copper piece would run into millions of amperes and the potential differences into billions of volts! Such figures stagger the imagination, yet that they are possible is evidenced by the facts given in the editorial.

Although it may seem fantastic, it might be possible to reverse the process and from the pure electricity to construct any element. Then will the alchemists' dreams come true and the most amazing vistas opened to the world of science.

This letter had better be ended here for it is becoming a bit too long. *Congratulations* to WONDER STORIES *on its third birthday!*

Milton Kaletsky,
New York, N. Y.

(It might be interesting to mention that Dr. Arthur H. Compton, world famous physicist, is sufficiently impressed with the possibility of releasing atomic energy that he is spending the rest of his life at the task.—*Editor*)

(*Continued on page 90*)

The Greatest Sin of all is total IGNORANCE of the most important subject in the life of every man and woman—SEX.

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Fevers and contagious diseases
Accidents and emergencies
Hygiene in the home
Limitation of offspring
The sexual embrace
Warning to young men
Secrets of greater delight
Dangerous diseases
Secrets of sex attraction
Hygienic precautions
Anatomy and physiology
The reproductive organs
What every woman wants
Education of the family
Sex health and prevention

Girls—Don't Marry

Before you know all this—

The dangers of petting
How to be a vamp
How to manage the honeymoon
What liberties to allow a lover
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SCIENCE QUESTIONS AND ANSWERS

(Continued from page 88)

The Rocket Automobile

Editor Science Questions and Answers:

1. Why is the rocket automobile not practical at the present time? If the difficulty is the dangerous exhaust fumes, would not the use of liquid hydrogen and liquid oxygen overcome that, for the exhaust product would be water?

2. Are there any more powerful fuels than liquid hydrogen and liquid oxygen? Where can I get information on the progress being made with rocket automobiles?

Harry R. Pancoast,
308 W. 28 St.,
Wilmington, Del.

(1. The rocket is not adapted to use on the automobile for two reasons. The first is that the rocket for efficiency must be applied to a vehicle designed to travel at one mile a second or more. At speeds of even 700 or 800 miles an hour it is relatively inefficient. Naturally then the speeds that would be required for automobiles are impossible to attain.

Furthermore the exhausts from the rocket are very dangerous because they would project for quite a distance, perhaps ten to twelve feet from the rocket. These gases even if not dangerous because of their constitution would be extremely hot, and therefore inflammable to anything they touched. To be within twenty feet of the rear of a rocket automobile even using hydrogen and oxygen might expose one to a lot of swiftly-moving superheated steam.

2. The only known fuel of greater energy per pound than the hydrogen oxygen mixture is that of atomic hydrogen. But atomic hydrogen is very unstable and reverts violently to the di-atomic or usual molecular form. Furthermore, the heat liberated by its use is so intense that no metal now known could stand it. So far as we know there is no real experimental work being carried on in rocket automobiles. —*Editor*)

THE READER SPEAKS

(Continued from page 80)

You See What You Want to See

Editor, WONDER STORIES

My esteemed colleague in science, Dr. Epaminondas T. Snooks, has brought to the attention of the scientific world the extreme danger of building too lofty a structure of theory on a single fact, and has found an excellent example of this dangerous practice in the May issue of your magazine—to be exact, in the inspired outpourings of one Bernard J. Kenton. While he is well known for his imaginative and impulsive digressions from the straight and narrow paths of scientific veritude, as set forth monthly in WONDER STORIES, there can be no excuse for his present blunder.

To be brief—to expose his utterly inane omission to the horrified eyes of the intelligent public—I feel it my duty to point out his glaring error with the beam of truth. It is this. Mr. Kenton utterly neglected to take into account the rather elementary phenomena of the Lorentz-Fitzgerald effect and their influence on any transmission of energy in an *n*-dimensional Space-Time continuum of the $(n-1)$th order!

Imagine such an omission on the part of a man of his ability! The results of his faulty assumptions of data are most evident. To be concise, his message, traversing Space-Time with the velocity of light, suffered the Lorentz-Fitzgerald contractions of length and time-interval. To make matters worse, they entered a fold in the universal continuum which altered their direction in the time-stream. Result! The cumulave of whose proceedings he gives a report took place in 2376 A.D., and the P. Schuyler Miller given such universal acclaim is *my great-great-great-great-great-great-etc. grandson!*

Another fact at once becomes apparent. Messrs Merritt, Smith, Williamson, Taine, et al, who, by inference, suffered igneminious defeat at my hands, are in truth the great-great-great-great-great-great-etc. grandfathers of the Merritt, Smith, Williamson, and Taine who succumbed to that future Miller. Garbo, of course, is eternal.

I am honored to be the ancestor of such a line of authors of science fiction—still, by the way, writing *for* WONDER STORIES—but with all due respect to Mr. Kenton's perspicacity I must dis-

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THE READER SPEAKS

claim the honor of utter supremacy, at least for the present. Let it suffice that the race of Miller shall evolve until in three hundred and forty four years, several months, and some odd days it shall rank supreme among the authors of the united System. At the same time, let me offer my sincerest condolences to the tribes of Merritt, Smith, Williamson, Taine, etc., who, while they may be sextuply great at present (being great - - - great grandfathers), are merely also-rans at that late date.

Even then, Merritt seems to be giving trouble. But the fact remains, in 2276 A.D., F Schuyler Miller VI is the sextuple monarch of the literary world! I can only tender my thanks, for him, to the universe in general—since there are probably some votes from the outlying stars as yet unrecorded—and repeat my warning to Mr. Keaton. Never attempt to draw radical conclusions from isolated data. My lengthy study of the properties of six different kinds of waterglass and seven different kinds of acid prove that disaster invariably follows.

Seriously, "The Time Stream" is a landmark. It requires plenty of rereading to really get at the meat. I know I am still bewildered. But I have one semi-intelligent question to ask of the world at large. Since the time-stream is closed and continuous, *is the terrible, bestial past of Ess the future of the Earth?*

And a jab at the Schwartz question. Science fiction as it exists today is unfortunately limited by the nature of its medium of expression. Wonder Stories is read by both sexes, between the ages of twelve and a hundred. Obviously, no author can present vividly and realistically for the benefit of the latter, experienced readers certain problems of future life and relations, of life in space ships and space colonies, that everyone realizes will and must occur, when sixth-grade children are reading them. They would not understand what was really being presented, anymore than they would understand a bald, literal statement of the theories of Freud and his school. Even adults get the wrong idea of that. It is not the fault of the editors or of the authors. It is simply that such things, even though they are presented intelligibly, (for I do not mean mere smut and muck-raking, but a real effort at analysis of the sort Wells might make) cannot be printed in a magazine of general circulation.

Not so long ago, they could not be printed in anything of general circulation, but a new school of frankly realistic literature has sprung up that permits such things in novels. And until publishers—literature in general—realizes, as it is beginning to do, that science fiction has possibilities ever and above romance and adventure and mild melodrama, there will be no real change to work out these problems.

What will be the real status of women in the future—in mechanistic cities and planetary colonies, during lengthy space voyages, in moon-wreck or interstellar war? What would a man, alone, on an asteroid really feel and do and think? What would be the actual relations between semi-human invaders from another planet or star and men and women on a conquered Earth? How would a world ruled by robots treat the inferior human race, if not as we treat cows and horses and other domestic animals?

At best, until very radical changes have occurred in the educational systems of the entire world, science fiction in magazines can only hint at the real major problems of past and future life, gloss them over with action and local color, and leave them for the real thinkers to dig out and discuss in private. At odd intervals an able author may break the hide-bound limitations of some publisher and give the world at large something to talk about. But you can't expect it here. The most you can look for is a new and radical idea that points the way to the real meat of the situation and leaves you to do the grubbing.

Not that science fiction can't be better in a literary way without treading on forbidden ground. It will have to improve if it is to be recognized by the "highbrows", and there are plenty of ways for it to do it—many of them ways that are being eagerly followed by experimenters in writing. But even if it isn't

(Continued on page 92)

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See Page 96 of this issue —

THE READER SPEAKS

(Continued from page 91)

Galsworthy or Conrad or Hardy, stick around and dig a little deeper than you have been, and I'll guarantee some morsel worth thinking about in almost every story that a competent editor of real science fiction prints. You needn't see it the way the author does—in fact, it's better if you don't, if you intend to do any mental arguing—but you do need to be able to see something that isn't written in black words of two syllables on white paper. If you can't read between the lines, where a great many authors are slipping in a little extra value nowadays, the chances are that you aren't bothered at all by what is written there, which should bother nobody but yourself.

This has all been said, in substance, by Dr. Breuer and others, many times and in many places before this. But the fact remains. Part of the readers can see that something extra and digest it without making a fuss over it. Another group are surprised by it, and broadcast their discovery, the way I did my time-stream question above. A third portion, one that is too big, have no desire for it and are generally satisfied with the obvious in a story, except when the real stuff crops out a little strongly and jolts them.

But there is a halfway bunch that feels the desire for more than superficial things and yet can't quite appreciate the fact that by the very nature of Man and the world they have to be hidden under thick layers of grease-paint, where some work is required to get at them. I'm afraid the discontented Mr. Schwartz is of this conservative bloc and doesn't realize it. Once upon a time a certain Mr. Lemon, in a story known as "The Scarlet Planet", tried to take a rather radical step in this direction with a very thin coating of burlesque. To some it was funny, terribly funny, and at the same time a very good portrayal of a certain type of mind and man. To others it was just a story, with quite a little rather bewildering action. To still a third faction it was disgusting—"a sex dream." Maybe it was. I have read some very good and very revealing stories written under hypnotic influence that were rather like it in some respects. But I prefer to think it funny, real burlesque and not "burleyque." You see—it's a question of what you're looking for, whether you realize it or not. You see what you want to see.

P. Schuyler Miller,
Scotia, New York.

(It is good of an author to occasionally come to the defense of the poor harassed editor. Mr. Miller, who knows the problem of trying to write for a hundred thousand people of ninety-eight thousand likes and dislikes, can appreciate what it means to select stories for the aforesaid ninety-eight thousand.

The problem of the editor is to furnish his customer with good stories, stories in which everyone can find morsels of entertainment, instruction, drama and even humor. To write such stories needs the hands of the genius, to discover the stories needs also the genius. And we are but halfway intelligent mortals.

Science fiction is like the newly born baby. Its father, mother, four grandparents, eight uncles, six cousins, twelve aunts and hordes of more distant relations all feel such a deep interest in the child that they want to have charge of its growth. So the two poor parents listen to the thunder of advice and try as best they can to raise the child to be a credit to themselves and their family.—*Editor*)

Released Upon a Gaping Public

Editor, WONDER STORIES:

Epaminondas T. Snooks, D. T. G.! Do you know what I thought when I first turned to the page with "Why the Heavens Fell" on it? Well, you see I was looking through the issue rather expecting to find the article on Paul. And when I turned over page 1379 and looked at 1381, my first impression at seeing that drawing of the author was . . . "Can this be Artist Paul ! ! !"

The May issue is extraordinarily splendid but the return of the old fashioned science fiction such as we had in the days of "The Experimenter," makes WONDER STORIES score again. How Snooky's story brings back memories of

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THE READER SPEAKS

Doc. Hackensbaw's Secrets, Fosdick and the other fellow, Hick's Inventions, etc.! If "Why the Heavens Fell" is an experiment, it has succeeded—let me tell you—beyond your wildest dreams! I'm going to ray-beam the first one that kicks about it. What a story!

So sorry I missed reading his "Monkey-Men of Meneginia." (Ha ha!) Did he play the part of one of the Monkey Men? Gosh, Frankenstein, Hyde and the Boogey Man better look to their laurels now that Snooks, D. T. G. has been released upon a gaping public. And by the way: what does D. T. G. stand for?—Doc. Toothless Gums? It must. I'll bet he was one of the Indians that welcomed Christopher Columbus at the end of his rocket flight—he looks old enough to have been!

But I mustn't devote my entire letter to Epic. There're other good stories in the issue, too. Am sure glad to see Capt. Meek again and by now the name of J. M. Walsh is becoming a not-unheard-of one. John Bertin's and the other tales are great, too, but I want to comment mostly on one other thing besides Snooks. That is Leslie F. Stone; her return to WONDER STORIES. That's about the best news in the issue. There've been other good women writers such as Rupert, Ellis, Lorraine, Harris, Black, etc. but Leslie F. Stone's work is always something to look forward to. Remember her "Men with Wings!" "Women with Wings!" "When the Sun Went Out!" and "The Conquest of Gola!"

Forrest J. Ackerman,
San Francisco, Cal.

(Perhaps because he is afraid of being ray-beamed by mistake, Dr. Snooks will not permit us to reveal his identity. But it is sufficient to say that he has an ancient and honorable history — *Editor*)

Attention, Bernard Kenton

Editor, WONDER STORIES:

I have just finished the May issue of WONDER STORIES and I'm wondering how I can contain myself until the next issue is published so that I can continue your serial, "Brood of Helios."

If you think this letter merits publication, you will do me a great favor by heading it, "Attention, Bernard Kenton." You see, for some time I have been trying to get a copy of Merritt's "Moon Pool" and I see that he mentions the book in his letter. If any of you other readers have a copy of this book or know of someone who has one, will you please get in touch with me.

Everyone else is throwing brickbats at Mr. Schwartz so I guess I'll take my turn. I'd like to meet him face to face, there are so many things I have to say and of such character that I wouldn't ask you to print them. Let it be sufficient that I have read WONDER STORIES for about four years. I led my class in Physics and was chosen to be the professor's assistant for two semesters. When graduation time rolled around, I missed being valedictorian by ¼ of a point in my average covering the four years I went to high school. In my opinion, science fiction stimulates the imagination of its readers and that, I think, is what made men like Edison.

Now to turn to the type of stories I like to see in "our" magazine. I place sound science and smooth continuity above everything. I don't believe that a complicated plot is necessary to a science fiction story, although it adds to its "readability," of course. I notice that several of the readers list the stories in the order that they appeal to them. I wouldn't attempt that, even for one issue but I want to congratulate you on your choice of two stories—two of the greatest stories I have ever read. These are "The Final War" and the "Time Stream." While reading the former I felt the corners of my mouth sagging several times and I'll admit that I stopped to dry my eyes more than once. "The Time Stream" was noteworthy for the marvelous way in which Mr. Taine handled this subject of time. Let's have more of these two kinds of stories.

Roy Meacham,
1058½ Murray Ave.,
Akron, Ohio.

(We have only one question to ask, are you satisfied yet, Mr. Schwartz?—*Editor*)

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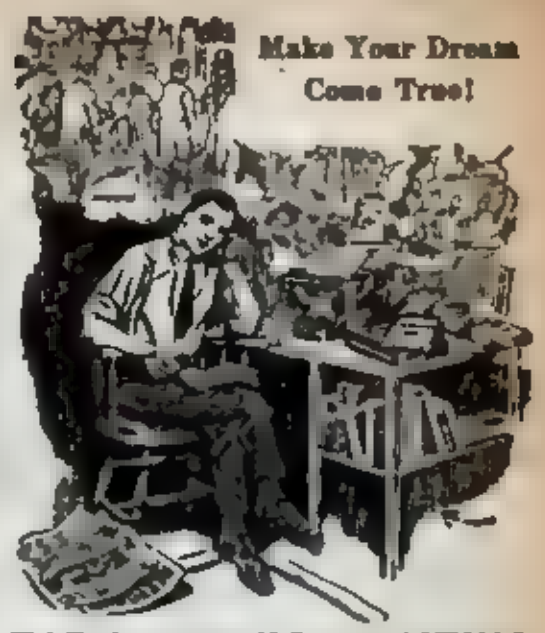

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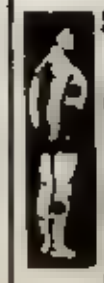

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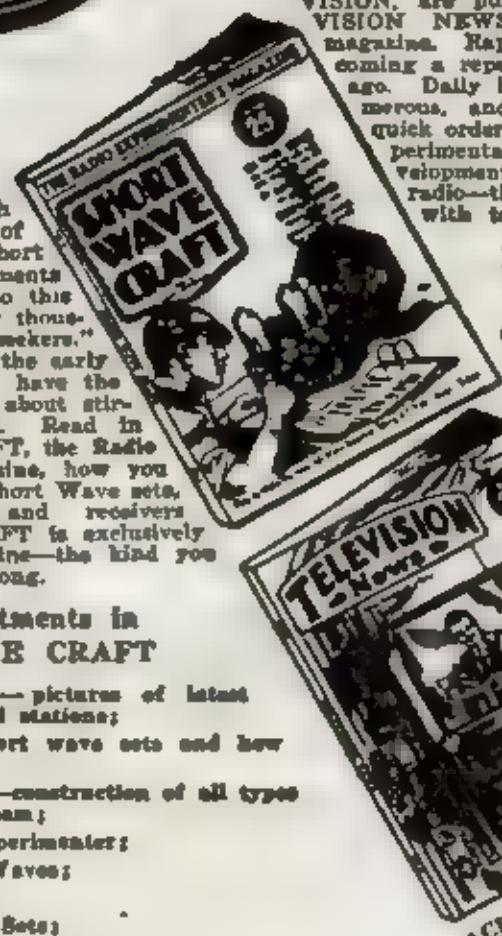

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BOOK REVIEWS

THE TRAGEDIES OF PROGRESS by Gina Lombroso. 326 pages, stiff cloth covers. Size 5½ x 8½. Published by E. P. Dutton and Company, New York. Price $3.75.

In this book the author who is the wife of Guglielmo Ferrero, the noted Italian historian, and daughter of Cesare Lombroso, the famous criminologist, launches a spirited attack against modern industrialism. She believes that our systems of mass production and industrial organization are not worth the price we pay for them, and she advocates a return to small industries, to agriculture and to the handicrafts.

The author develops her theme from a study of the civilizations of Greece, Rome and Egypt. She shows that although a crude knowledge of the fundamentals of science, of invention and engineering was common among the educated classes of these early civilizations, the mental orientation of these peoples and the condition of slavery that prevailed did not permit the development of large industries for profit. In China too, the establishment of an industrial age was feasible several millennia ago, but as in the other ancient civilizations the people preferred to study science for its own sake, for the development of morality, justice and philosophy rather than for its practical application to the mass production of luxuries.

THE BOOK OF METALS by Donald Wilhelm, 335 pages, illustrated, stiff cloth covers. Size 6½ x 9½. Published by Harper & Bros., New York. Price $4.00.

This volume is a popular, yet authentic survey of metallurgy and of those metals that have been so largely responsible for building up our civilization and the industrial age. The author shows how metallic ores are discovered, how they are mined, smelted, refined and used, and what their possibilities are. The material facts presented in this volume have been checked we are informed by a large number of mining companies and smelters.

It is well known that the use of metals—or at least the control of them, is the basis of what we call civilization. So the ages in our development are often divided into the stone age, the bronze age, and the iron or steel age. Today we have in addition the new wonder metals such as aluminum, nickel, zinc, platinum, chromium, tungsten and all of the marvelous alloys that have extended vastly the possibilities of making and using new devices of science.

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THE NEW CONCEPTIONS OF MATTER by C. G. Darwin, M.A.F.R.S. 225 pages, stiff cloth covers, illustrated. Size 6 x 9. Published by The Macmillan Company, New York. Price $3.00.

Mr. Darwin treats here of the New Mechanics or New Physics that is modifying many of our preconceptions of matter. Describing his hypothesis regarding the fundamentals of matter, he demonstrates the theory of the motion of waves to show how wave mechanics have originated. The principle of uncertainty, that is revolutionizing physics, the nature of polarization, and the curious behavior of atoms observed under various conditions are described in non-technical language, so far as possible. It must be realized, however, whenever an author attempts a popular work on a complicated subject, that the cooperation of the readers, by close concentration, is absolutely essential for profitable understanding. That is particularly true of the present volume.

CHILD AND UNIVERSE by Bertha Stevens, 249 pages, stiff cloth covers, illustrated. Size 6½ x 9½. Published by John Day Company, New York. Price $3.75.

This book, which is a study of natural science, is designed for teachers in elementary schools, and parents who are confronted with the neces-

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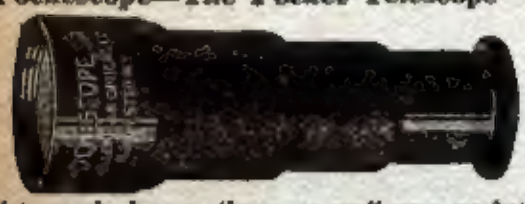

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A large number of excellent photographs of everyday objects revealing their dynamic or esthetic beauty, help to forcefully illustrate the text.

THE MACHINES WE ARE by Robert T. Hance, 380 pages, stiff cloth covers, size 6 x 9. Published by Thomas Y. Crowell Company, New York. Price $3.00.

The author, who is professor of Zoology at the University of Pittsburgh, attempts here to give a summary of our biological knowledge, as it relates to man, and to trace the development of adult man from the union of ovum and spermatozoon. The work is not only popular but is lightened with flashes of spontaneous humor. Professor Hance traces the dual forces of heredity and environment that give us our foundation of physical structure and personality and then shows how the living organism utilizes food, how it breathes and moves about, how it responds to irritable stimuli from the outside. Although the subject matter treats the human body as a mechanistic organism, the author does not want it assumed that he takes the mechanistic view of life. The book does succeed in telling in simple, non-technical language something about ourselves, and gives a hint of our physical and mental potentialities.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912.

Of Wonder Stories published monthly at Mt. Morris, Ill., for April 1, 1932.

State of New York } ss.
County of New York }

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Irving Manheimer, who, having been duly sworn according to law, deposes and says that he is the Business manager of the Wonder Stories and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation) etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, Stellar Publishing Co., 404 No. Wesley Ave., Mt. Morris, Ill.; Editor, Hugo Gernsback, 98 Park Place, New York; Managing Editor, David Lasser, 98 Park Place, New York; Business Managers, Irving Manheimer, 98 Park Place, New York.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.) Stellar Publishing Corp., 404 No. Wesley Ave., Mt. Morris, Ill.; Hugo Gernsback, 98 Park Place, New York; Sidney Gernsback, 98 Park Place, New York; D. Manheimer, 98 Park Place, New York.

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